Overview
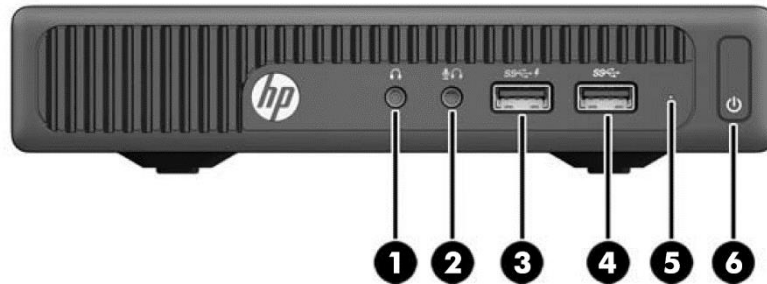
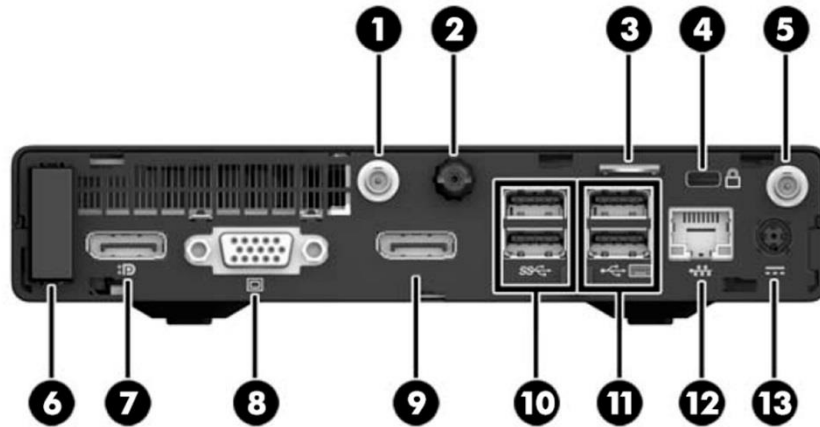### HP EliteDesk 705 G2 Desktop Mini Business PC

1.	Headphone Connector	4.	USB 3.0
2.	Microphone or Headphone Connector (software selectable, default mode is microphone)	5.	Hard Drive Activity Light
3.	USB 3.0 –Charging	6.	Dual-State Power Button

Not all configuration components are available in all regions/countries.
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Page 1

HP EliteDesk 705 G2 Desktop Mini Business PC

1. Optional External Antenna Connector
2. Thumbscrew
3. Padlock Loop
4. Ultra-slim cable lock
5. Optional External Antenna Connector
6. Antenna Cover
7. DisplayPort Monitor Connector

8. VGA Monitor Connector
9. Choice of DisplayPort (shown), HDMI, or Serial Connector
10. (2) USB 3.0 Ports (blue)
11. (2) USB 2.0 ports (black), allows for wake from S4/S5 with keyboard/mouse when connected and enabled in BIOS
12. RJ-45 Network Connector
13. Power Connector

Not Shown

Slots   (1) internal M.2 PCIe x4 connector for optional wireless NIC
(1) internal M.2 PCIe x4 connector for optional SSD drive

Bays   (1) 2.5" internal storage drive bay

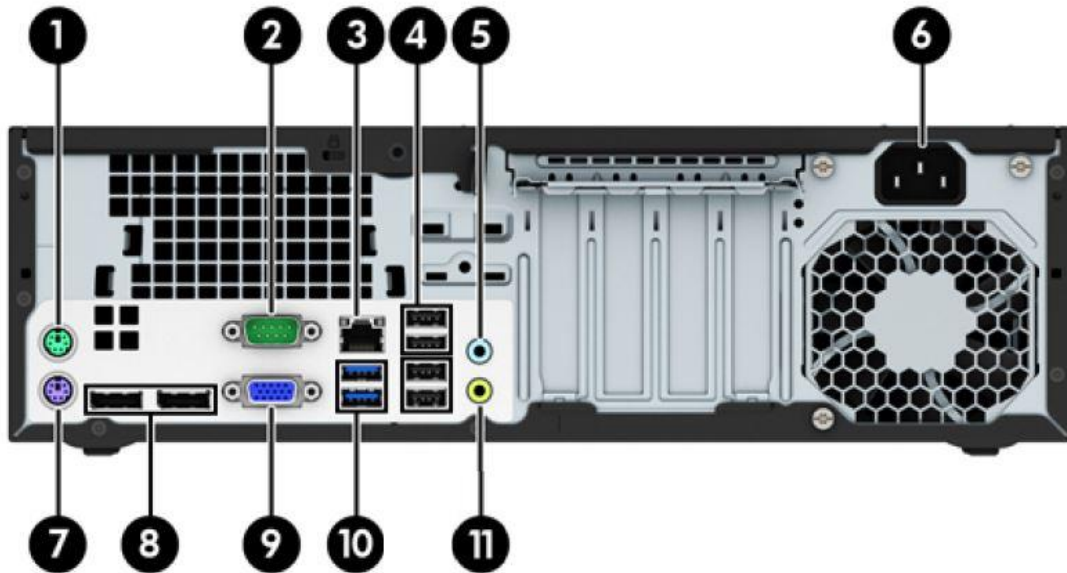VESA   Support for VESA 100 mounting system on bottom of PC chassis

Not all configuration components are available in all regions/countries.
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Page 2

Overview

HP EliteDesk 705 G2 Small Form Factor Business PC

1. 9.5mm Slim Optical Drive (optional)
2. USB 2.0 Fast Charging Port (black)
3. USB 2.0 Port (black)
4. 2 USB 3.0 Ports (blue)
5. Microphone/Headphone Connector

6. Headphone Connector
7. Dual-State Power Button
8. Hard Drive Activity Light
9. SD 3 Card Reader (optional)

Not all configuration components are available in all regions/countries.
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Overview

HP EliteDesk 705 G2 Small Form Factor Business PC

1. PS/2 Mouse Connector (green)
2. Serial Connector
3. RJ-45 Network Connector
4. 4 USB 2.0 Ports (black)
5. Line-In Audio Connector (blue)
6. Power Cord Connector

7. PS/2 Keyboard Connector (purple)
8. 2 DisplayPort Monitor Connectors
9. VGA Monitor Connector
10. 2 USB 3.0 Ports (blue)
11. Line-Out Connector for powered audio devices (green)

NOTE: An optional second serial port and an optional parallel port are available from HP.

Not Shown

Slots (2) PCI Express x16 graphics connectors; one wired as a x4
(2) PCI Express x1 accessory connectors

Bays (1) 2.5" internal storage drive bay
(2) 3.5" internal storage drive bay

Not all configuration components are available in all regions/countries.
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Overview

HP EliteDesk 705 G2 Microtower Business PC

1. 9.5mm Slim Optical Drive (optional)
2. Dual-State Power Button
3. USB 2.0 Fast Charging Port (black)
4. 2 USB 3.0 Ports (blue)
5. Headphone Connector
6. SD 3 Card Reader (optional)

7. Hard Drive Activity Light
8. USB 2.0 Port (black)
9. Microphone/Headphone Connector

1. PS/2 Keyboard Connector (purple)
2. 2 DisplayPort Monitor Connectors
3. VGA Monitor Connector
4. 2 USB 3.0 Ports (blue)
5. 4 USB 2.0 Ports (black)
6. Line-Out Connector for powered audio devices (green)
7. Power Cord Connector
8. PS/2 Mouse Connector (green)
9. Serial Connector
10. RJ-45 Network Connector
11. Line-In Audio Connector (blue)

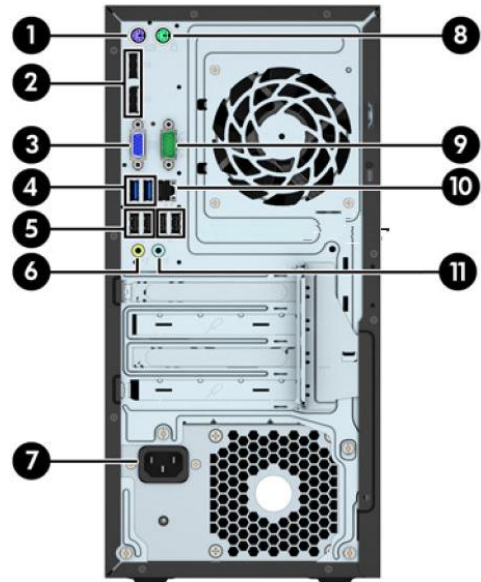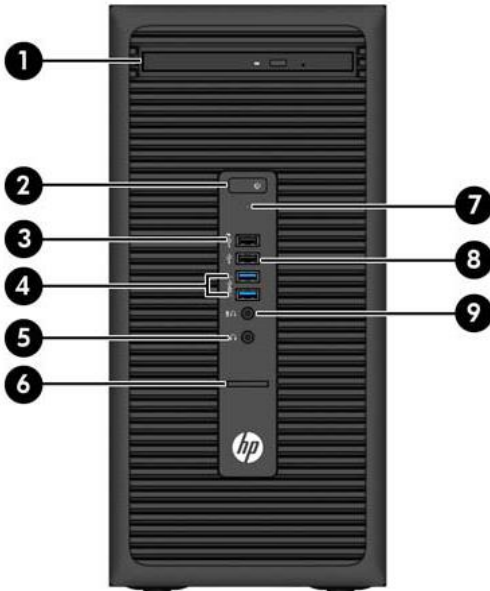 NOTE: An optional second serial port and an optional parallel port are available from HP.

Not Shown

Slots   (2) PCI Express x16 graphics connectors; one wired as a x4
(2) PCI Express x1 accessory connectors

Bays   (2) 3.5" internal storage drive bays

Overview

At A Glance

- Choice of chassis form factors: Desktop Mini, Small Form Factor and Microtower
- PC chassis and all internal components and modules are manufactured with low halogen content
- HP developed and engineered UEFI BIOS supporting security, manageability and software image stability
- DDR3L Synchronous Dynamic Random Access Memory (SDRAM)
- Processor support up to 95W (MT/SFF)
- Multi-independent monitor support via VGA, HDMI (DM only), and dual digital DisplayPort video interfaces with multi-stream[1]
- DTS Studio Sound™ audio management software[2]
- Standard and high efficiency energy saving power supply options
- SFF and MT models can be configured with dual data drives in a RAID (limited configurations)
- ENERGY STAR® certified and certified EPEAT® Gold models
- Low halogen[3]
- Arsenic-free
- Lengthy purchase lifecycles and image stability

NOTE: See important legal disclosures for all listed specs in their respective features sections.
1. DisplayPort multi-stream monitors 'daisy-chained' together.
2. For DTS patents, see http://patents.dts.com. Manufactured under license from DTS Licensing Limited. DTS, the Symbol, & DTS and the Symbol together are registered trademarks, and DTS Studio Sound is a trademark of DTS, Inc. © DTS, Inc. All Rights Reserved.
3. External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

QuickSpecs

Standard Features and Configurable Components (availability may vary by country)

CHIPSET

AMD® A78 FCH

PROCESSORS

AMD PRO A12 APU with AMD Radeon™ R7 HD Graphics*	MT & SFF	DM
AMD® PRO A12-8800B with AMD® Radeon™ R7 Graphics 35W Up to 3.4 GHz Max. Boost Frequency (2.1 GHz base frequency) 2 MB L2 Cache. 4 cores, 8 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies		X

AMD A10 PRO APU with AMD Radeon™ R7 HD Graphics*	MT & SFF	DM
AMD A10 PRO-7800B Accelerated Processor with AMD® Radeon™ R7 Graphics 65W Up to 3.9 GHz Max. Boost Frequency (3.5 GHz base frequency) 4 MB L2 cache, 4 cores, 8 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies	X	

AMD PRO A10 APU with AMD Radeon™ R7 HD Graphics*	MT & SFF	DM
AMD PRO A10 -8850B Accelerated Processor with AMD® Radeon™ R7 Graphics 95W Up to 4.1 GHz Max. Boost Frequency (3.9 GHz base frequency) 4 MB L2 cache, 4 cores, 8 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies	X	
AMDPRO A10 -8750B Accelerated Processor with AMD® Radeon™ R7 Graphics 65W Up to 4.0 GHz Max. Boost Frequency (3.6 GHz base frequency) 4 MB L2 cache, 4 cores, 8 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies	X	

AMD PRO A10 APU with AMD Radeon™ R6 HD Graphics*	MT & SFF	DM
AMD PRO A10-8700B Accelerated Processor with AMD® Radeon™ R6 Graphics 35W Up to 3.2 GHz Max. Boost Frequency (1.8 GHz base frequency) 2 MB L2 Cache. 4 cores, 6 Graphics Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies		X

QuickSpecs

Standard Features and Configurable Components (availability may vary by country)

AMD A8 PRO APU with AMD Radeon™ R7 HD Graphics*	MT & SFF	DM
AMD A8 PRO-7600B Accelerated Processor with AMD® Radeon™ R7 Graphics 65W Up to 3.8 GHz Max. Boost Frequency (3.1 GHz base frequency) 4 MB L2 cache, 4 cores, 6 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies	X	

AMD PRO A8 APU with AMD Radeon™ R7 HD Graphics*	MT & SFF	DM
AMD PRO A8 -8650B Accelerated Processor with AMD® Radeon™ R7 Graphics 65W Up to 3.9 GHz Max. Boost Frequency (3.2 GHz base frequency) 4 MB L2 cache, 4 cores, 6 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies	X	

AMD PRO A8 APU with AMD Radeon™ R6 HD Graphics*	MT & SFF	DM
AMD PRO A8-8600B Accelerated Processor with AMD® Radeon R6 Series 35W Up to 3.0 GHz Max. Boost Frequency (1.6 GHz base frequency) 2 MB L2 Cache. 4 cores, 6 Graphics Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies		X

AMD PRO A6 APU with AMD Radeon™ R5 HD Graphics*	MT & SFF	DM
AMD PRO A6 – 8550B Accelerated Processor with AMD® Radeon™ R5 Graphics 65W Up to 4.0 GHz Max. Boost Frequency (3.7 GHz base frequency) 1 MB L2 cache, 2 cores, 4 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies	X	
AMD PRO A6-8500B with AMD® Radeon R5 Series 35W Up to 3.0 GHz Max. Boost Frequency (1.6 GHz base frequency) 1 MB L2 Cache. 2 cores, 4 Graphics Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies		X

AMD PRO A4 APU with AMD Radeon™ R5 HD Graphics*	MT & SFF	DM
AMD PRO A4– 8350B Accelerated Processor with AMD® Radeon R5 Graphics 65W Up to 3.9 GHz Max. Boost Frequency (3.5 GHz base frequency) 1 MB L2 cache, 2 cores, 4 Graphics Core Next Cores Discrete-Class Graphics Supports DDR3L memory up to 1600 MT/s data rate	X	

QuickSpecs

Standard Features and Configurable Components (availability may vary by country)

Supports AMD® DASH 1.1 Technologies		

AMD Dual-Core A4 PRO APU with AMD HD 8470D Graphics*	**MT & SFF**	**DM**
AMD A4 PRO–7300B Processor with AMD HD 8470D Graphics 65W Up to 4.0 GHz Max. Boost Frequency (3.8 GHz base frequency) 1 MB L2 cache, 2 cores, 3 Graphics Core Next Cores Supports DDR3L memory up to 1600 MT/s data rate Supports AMD® DASH 1.1 Technologies	X	

*Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing system required. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. AMD's numbering is not a measurement of clock speed.

GRAPHICS

System Integrated Graphics

	SFF	**MT**	**DM**
AMD Radeon™ HD Graphics (integrated on processor)	X	X	X

Optional Discrete Graphics Solutions

	SFF	**MT**	**DM**
NVIDIA® GeForce® GT 730 2GB PCIe x8	X	X	
NVIDIA GeForce GT 720 2GB PCIe x16 (China only)		X	
NVIDIA Quadro NVS 310 1GB PCIe x16	X	X	
AMD Radeon™ R9 350 2GB PCIe x16		X	

ADAPTERS AND CABLES

HP DisplayPort Cable	X	X	X
HP Display Port Cable 2nd	X	X	X
HP DisplayPort to DVI-D Adapter	X	X	X
HP DisplayPort to DVI-D Adapter 2nd	X	X	X
HP DisplayPort to HDMI 4K Adapter	X	X	X
HP DisplayPort to HDMI 4K Adapter	X	X	X
HP DisplayPort to VGA Adapter	X	X	X
HP DisplayPort to VGA Adapter 2nd	X	X	X
HP DVI Cable	X	X	X
HP USB-C to USB 3.0 Adapter	X	X	
HP 700mm DisplayPort Cable			X

Not all configuration components are available in all regions/countries.

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QuickSpecs

Standard Features and Configurable Components (availability may vary by country)

STORAGE*, **

2.5 inch 5.4k RPM Hard Disk Drives	SFF	MT	DM
2TB SATA HDD			X
2TB SATA HDD 2nd			X

2.5 inch 7.2k RPM Hard Disk Drives	SFF	MT	DM
1TB SATA (Planned to be available 12/07/15)	X	X	X
1TB SATA 2nd (Planned to be available 12/07/15)	X	X	X
500GB SATA	X	X	X
500GB SATA 2nd	X	X	X

3.5" SATA 7.2k RPM Hard Disk Drives	SFF	MT	DM
1TB SATA	X	X	
1TB SATA 2nd	X	X	
2TB SATA	X	X	
2TB SATA 2nd	X	X	
500GB SATA	X	X	
500GB SATA 2nd	X	X	

2.5 inch Solid State Hybrid Drives (SSHD)	SFF	MT	DM
1TB SATA 6G 2.5 8G SSHD	X	X	X
1TB SATA 2.5 8G SSHD 2nd	X	X	X
500GB SATA 6G 2.5 8G SSHD	X	X	X
500GB SATA 6G 2.5 8G SSHD 2nd	X	X	X

3.5 inch Solid State Hybrid Drives (SSHD)	SFF	MT	DM
1TB 7200 RPM SATA 8GB	X	X	

2.5 inch Solid State Drives (SSD)	SFF	MT	DM
120GB SATA SSD	X	X	X
120GB SATA SSD 2nd	X	X	X
120GB SATA SSD (Intel® Pro 2500)	X	X	X
120GB SATA SSD (Intel® Pro 2500) 2nd	X	X	X
128GB SATA SSD	X	X	X
128GB SATA SSD 2nd	X	X	X
128GB SATA TLC SSD	X	X	X
128GB SATA TLC SSD 2nd	X	X	X
180 SATA SSD	X	X	X
180 SATA SSD 2nd	X	X	X
180GB SATA (Intel® Pro 2500)	X	X	X
180GB SATA (Intel® Pro 2500) 2nd	X	X	X
256GB SATA SSD	X	X	X

Standard Features and Configurable Components (availability may vary by country)

256GB SATA SSD 2nd	X	X	X
256GB SATA TLC SSD	X	X	X
256GB SATA TLC SSD 2nd	X	X	X
512GB SATA TLC SSD	X	X	X
512GB SATA TLC SSD 2nd	X	X	X
128GB SATA Value SSD	X	X	X
256GB SATA Value SSD	X	X	X
128GB SATA 2.5 TLC SSD	X	X	X
256GB SATA 2.5 TLC SSD	X	X	X
512GB SATA 2.5 TLC SSD	X	X	X

2.5 inch Self-encrypting Solid State Drives (SED)

	SFF	MT	DM
120GB SATA Opal2 SED SSD (Intel® Pro 2500)	X	X	X
120GB SATA Opal2 SED SSD (Intel® Pro 2500) 2nd	X	X	X
128GB SATA Opal2 SED SSD	X	X	X
128GB SATA Opal2 SED SSD 2nd	X	X	X
180GB SATA Opal2 SED SSD (Intel® Pro 2500)	X	X	X
180GB SATA Opal2 SED SSD (Intel® Pro 2500) 2nd	X	X	X
256GB SATA Opal2 SED SSD	X	X	X
256GB SATA Opal2 SED SSD 2nd	X	X	X
500GB SATA Opal2 SED SSD	X	X	
500GB SATA Opal2 SED SSD 2nd	X	X	
1TB SATA 6G Opal2 SED SSD	X	X	
1TB SATA 6G Opal2 SED SSD 2nd	X	X	
512GB SATA 6G Opal2 SED SSD	X	X	
1TB SATA 6G Opal2 SED SSD 2nd	X	X	

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

**NOTE: Desktop Mini 2nd HDD only available when 1ststorage drive is M2 drive.

PCIe Cards

	SFF	MT	DM
HP 128GB Turbo Drive SSD-PCIe Card	X	X	
HP 256GB Turbo Drive SSD-PCIe Card	X	X	
HP 128GB Turbo Drive SSD-M.2 PCIe Card			X
HP 256GB Turbo Drive SSD-M.2 PCIe Card			X
HP 128GB Turbo Drive G2 SSD-PCIe Card	X	X	
HP 256GB Turbo Drive G2 SSD-PCIe Card	X	X	
HP 512GB Turbo Drive G2 SSD-PCIe Card	X	X	

Optical Disc Drives

	SFF	MT	DM
HP 9.5mm Slim DVD-ROM Drive	X	X	

Not all configuration components are available in all regions/countries.
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QuickSpecs

Standard Features and Configurable Components (availability may vary by country)

HP 9.5mm Slim SATA BDXL Blu-Ray Writer		X	X	
HP 9.5mm Slim DVD Writer Drive		X	X	

Removable

HP 9.5mm Slim Removable SATA 500GB		X	X	

Media Card Reader (optional)*

	SFF	MT	DM
SD3 with 4-in-1. Interface from SD option to PCA is USB. (Supports Secure Digital (SD, SDXC, SDHC, UHS-I))	X	X	

*Card sold separately

MEMORY*

Form Factor	Type	Maximum	# of Slots
Small Form Factor	DDR3L-1600 (Transfer rates up to 1600 MT/s)	32 GB	4 DIMM
Microtower	DDR3L-1600 (Transfer rates up to 1600 MT/s)	32 GB	4 DIMM
Desktop Mini	DDR3L-1600 (Transfer rates up to 1600 MT/s)	16 GB	2 SODIMM

* Full availability of 4 GB or more of memory requires a 64-bit operating system. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

Memory modules support data transfer rates up to 1600 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

Standard Features and Configurable Components (availability may vary by country)

NETWORKING/COMMUNICATIONS

Ethernet (RJ-45) Integrated	SFF	MT	DM
Broadcom NetXtreme Gigabit Ethernet Plus - DASH compliant NIC	X	X	X
Optional			
Intel® Ethernet I210-T1 PCIe x1 Gb Network Interface Card	X	X	
Wireless LAN (optional)*			
Intel® 7265 802.11ac 2x2 DualBand PCIe x1 Card (Bluetooth® Disabled)	X	X	
Broadcom BCM943228Z 802.11n 2x2 DualBand PCIe x1 Card (Bluetooth® Disabled)	X	X	
Intel® 7265 802.11n M.2 NIC (Bluetooth® Disabled)			X
Intel® 7265 802.11n M.2 Bluetooth® NIC			X
Intel® 7265 802.11AC M.2 Bluetooth®			X
Intel® 3165 802.11ac M.2 NIC (Bluetooth® Disabled)			X
Intel® 3165 802.11ac M.2 Bluetooth® NIC			X

* Wireless access point and Internet service required and not included. Availability of public wireless access points limited.

AUDIO/MULTIMEDIA

HD audio with Realtek ALC221VB

Microphone and headphone front ports (3.5mm)

Line-out and Line-In rear Ports (3.5mm) (SFF/MT only)

Internal mono speaker (standard)

* The front microphone port is re-taskable as a Line-in, Microphone-in or Headphone-out port. Rear audio input ports are re-taskable as a Line-in or Microphone-in port. External speakers must be powered externally. Multi-streaming can be enabled in the Realtek control panel to allow independent audio streams to be sent to/from the front and rear jacks. This allows for different audio applications to use separate audio ports on the system. For example, the front jacks could be used with a headset for a communications application while the rear jacks are being used with external speakers and a multimedia application.

KEYBOARDS AND POINTING DEVICES

Keyboards	SFF	MT	DM
HP Conferencing Keyboard	X	X	X
HP USB PS/2 Washable Keyboard	X	X	X
HP USB Smart Card (CCID) Keyboard	X	X	X
HP USB Business Slim Keyboard	X	X	X
HP PS/2 Keyboard	X	X	
HP PS/2 Business Slim Keyboard	X	X	
HP Wireless Business Slim Keyboard and Mouse	X	X	X
HP USB Antimicrobial Keyboard and Mouse (China only)	X	X	X
Mice	**SFF**	**MT**	**DM**
HP PS/2 Mouse	X	X	
HP USB 1000dpi Laser Mouse	X	X	X

Not all configuration components are available in all regions/countries.
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Standard Features and Configurable Components (availability may vary by country)

HP USB Mouse	X	X	X
HP USB PS/2 Washable Mouse	X	X	X
HP USB Antimicrobial Mouse (China only)	X	X	X
HP USB Hardened Mouse	X	X	X
Combo	**SFF**	**MT**	**DM**
HP Wireless Keyboard and Mouse	X	X	X
HP Wireless Business Slim Keyboard and Mouse*	X	X	X
Other	**SFF**	**MT**	**DM**
HP Mouse Pad	X	X	X

HP BIOS

Key features of the HP BIOS include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the HP Elite 800 G2 Business PC into the enterprise, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
- Update your BIOS via the cloud or standardize on a BIOS version hosted on Enterprise network.
- Select models feature either Intel® Standard Manageability or Intel® Core™ vPro™ Processor Technology.
- Stability – HP BIOS supports the HP stable product roadmap by releasing only critical BIOS changes to the factory and advanced change notification.
- UEFI specification 2.1
- Absolute Persistence agent – For tracking and tracing services, available in select countries, separate software and purchase of a subscription is required.
- Thermal and power management – The HP BIOS provides and enables thermal and power management technologies so component temperatures are managed for high reliability and to assist in operating the HP Business Desktop computer in any enterprise environment.
- Acoustic performance – Industry leading acoustic emissions across the range of operating conditions.
- Serviceability – HP BIOS provides diagnostic and detailed service information.
- Upgrades and recovery – HP BIOS provides numerous ways to upgrade HP Business Desktop computers, including BIOS updates from within DOS (DOSFlash), BIOS updates from within Windows (HPQFlash), HP Client Manager, and fail-safe recovery. In addition, the HP Business Desktop BIOS Utilities tool enables replicated BIOS setup throughout the Enterprise; it is available from within the BIOS software and from the support website.
- HP BIOS uses PKI signing of the BIOS for trusted BIOS upgrades and recovery.

Additional HP BIOS Features:

- Power-On password – Helps prevent an unauthorized user from powering on the system.
- Administrator password – Also known as the setup password, this helps prevent unauthorized changes to the system configuration. If the administrator password is not known, the BIOS version cannot be changed and changes cannot be made to BIOS settings using F10 setup or under the OS.
- Advanced Configuration and Power Interface (ACPI) – Represents a significant innovation in power and configuration management, allowing operating systems and applications to manage power based on activity and usage. HP Elite models use ACPI to provide power conservation features.

S5 Max Power Savings setting supports EU Lot6 requirement and allows the computer to power down below 1W is S5 (when turned off). When S5 Max Power Savings feature is enabled power to slots is turned off along with WOL functionality.

Not all configuration components are available in all regions/countries.

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Standard Features and Configurable Components (availability may vary by country)

Sure Start (not available on all systems)

- BIOS Integrity checking – Sure Start protection ensures that only trusted BIOS code is executed and not rootkits, viruses and malware. Verification is done upon boot up, shutdown and while On.
- Sure Start is set by default to automatically repair the BIOS if corrupted or compromised but is policy driven for better manageability.
- Protecting beyond BIOS – Integrity checking and repair is extended to other data that should be protected such as network configuration parameters (network name), platform specific information (i.e. system IDs) and other code the system needs to boot.
- Audit enabled – System Audit via Sure Start Event Logs capture data such as incident, repair date and time for troubleshooting and investigating.

SECURITY

MT/SFF - Trusted Platform Module,SLB9660TT1.2FW4.40 (TPM) 1.2
DM - Trusted Platform Module,SLB9670TT1.2FW4.40 (TPM) 1.2 (Common Criteria EAL4+
certified), Field upgradeable to 2.0

SATA port disablement (via BIOS)

Drive lock

RAID configurations (MT/SFF only)

Serial, USB enable/disable (via BIOS)

Optional USB Port Disable at factory (user configurable via BIOS)

Removable media write/boot control

Power-On password (via BIOS)

Setup password (via BIOS)

Solenoid Hood Lock / Intrusion Sensor

Support for chassis padlocks and cable lock devices

ENVIRONMENTAL & INDUSTRY

ENERGY STAR® certified models available
EPEAT® registered where applicable/supported. See http://www.epeat.net for registration status by country.
Low halogen (chassis, all internal components and modules)*
TAA compliant models available
* External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

PORTS

I/O Ports - Standard

	SFF & MT	DM
USB 2.0	2 - (front) – One is a fast charging port; 4 - (rear) two rear have USB 2.0 Ports	2 - (rear)
USB 3.0	2 - (front); 2 - (rear)	2 - (front); 2 - (rear)
Serial (RS-232)	1 – Serial connector	1 - (optional Serial)

Not all configuration components are available in all regions/countries.
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Standard Features and Configurable Components (availability may vary by country)

PS/2	1 - Keyboard (purple) with Wake from S4/S5 1 - Mouse (green)	N/A
Video	1 - VGA 2 - DisplayPort	1 - VGA 1 – DisplayPort 1 -(2nd DisplayPort, HDMI optional)* *N/A is Serial Connector selected
Audio	Front: 1 - Headphone/microphone 1 - Headphone connector Rear: 1 - Line in (3.5mm diameter) 1 – Line out (3.5mm diameter)	Front: 1 - Headphone/microphone 1 - Headphone connector
Network Interface	RJ-45 connector	RJ-45 connector

I/O Ports - Optional

2nd Serial (RS-232)	1 - HP Serial Port Adapter	1 - Serial, HDMI, 2nd DisplayPort
Parallel	1 - HP Parallel Port PCIe x1 Card	
USB-C™	1 - HP SuperSpeed USB 3.1 Gen 2 PCIe x1 Card	

I/O Ports – Internal Ports

	DM	**SFF**	**TWR**	**AiO**
DM SATA storage connector	1	N/A	N/A	N/A
AiO SATA storage connector	N/A	N/A	N/A	2

	MT	**SFF**	**TWR**	**AiO**
Internal SATA storage connector(s)	3	3	N/A	N/A

SLOTS

	SFF	**MT**	**DM**
PCI Express x1 (v2.0)	2 ea. 2.5" low profile 6.6" length 10W max. power	2 ea. 4.376" full height 6.6" length 10W max. power	N/A
PCI Express x16 (v2.0) (wired as a x4)	1 ea. 2.5" low profile 6.6" length 10W max. power	1 ea. 4.376" full height 6.6" length 10W max. power	N/A
PCI Express x16 (v3.0)	1 ea. 2.5" low profile 6.6" length 75W max. power	1 ea. 4.376" full height 6.6" length 75W max. power	N/A

Standard Features and Configurable Components (availability may vary by country)

Turbo Drive (M.2 PCIe)	N/A	N/A	1 ea. M.2 PCIe x4-2230 (for WLAN) 1 ea. M.2 PCIe x4-2280 (for storage)

BAYS

	SFF	MT	DM
5.25" Half Height ODD	N/A	N/A	N/A
Slim ODD	1 ea.	1 ea.	N/A
Secure Digital (SD) Reader	1 ea.	1 ea.	N/A
2.5" internal storage drive	1 ea.	N/A	1 ea.
3.5" internal storage drive	2ea.	2 ea.	N/A

Standard Features and Configurable Components (availability may vary by country)

SERVICE AND SUPPORT

On-site Warranty [1]: Three-year (3-3-3) limited warranty delivers three years of on-site, next business day [2] service for parts and labor and includes free support[3] 24 x 7. Three-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing an optional HP Care Pack.[4] To choose the right level of service for your HP product, visit HP Care Pack Central: www.hp.com/go/cpc

NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.

NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

NOTE 3: Technical telephone support applies only to HP-configured and third-party HP qualified hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

NOTE 4: Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product..

Standard Features and Configurable Components (availability may vary by country)

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

OPERATING SYSTEMS

Preinstalled

Windows 10 Pro 64*
Windows 10 Home 64*
Windows 8.1 Pro 64**
Windows 8.1 64**
Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro)***
Windows 7 Professional 32 (available through downgrade rights from Windows 10 Pro)***
Windows 7 Professional 64**
Windows 7 Professional 32**

Pre-installed (Other)
FreeDOS 2.0

Web-supported

Windows 10 Pro 64
Windows 10 Home 64
Windows 8.1 Pro 64
Windows 8.1 64
Windows 7 Professional 64
Windows 7 Professional 32
Windows 10 Enterprise 64
Windows 8.1 Enterprise 64
Windows 7 Enterprise 64
Windows 7 Enterprise 32

*Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See http://www.microsoft.com.
**Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. See http://www.microsoft.com.
***This system is preinstalled with Windows 7 Pro software and also comes with a license and media for Windows 10 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

SOFTWARE AND SECURITY

BIOS

HP BIOSphere with Sure Start[1]
HP DriveLock
HP BIOS Protection[2]
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Pre-Boot Security
Secure Erase[3]

Not all configuration components are available in all regions/countries.
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Standard Features and Configurable Components (availability may vary by country)

Hybrid Boot (Windows 8.1 and Windows 10 only)
Measured Boot (Windows 8.1 and Windows10 only)
Secure Boot (Windows 8.1 and Windows 10 only)
Absolute Persistence Module[4]

Multimedia

Cyberlink Power DVD, BD
Cyberlink Power2Go (Secure Burn)

Communication

Native Miracast Support [7]

HP Value Add Software

HP ePrint Driver [8]
HP Recovery Disc Creator
HP Recovery Manager
HP Support Assistant
HP Pixel Sharp
Windows 10 Welcome App

3rd Party

Foxit PhantomPDF Express for HP

Microsoft Products

Buy Office
Bing Search
Skype

Manageability

HP Driver Packs [9]
HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM) [9]
HP BIOS Config Utility (BCU) [9]
HP Client Catalog [9]
HP CIK for Microsoft SCCM [9]
LANDESK Management[10]

For more information on HP Client Management Solutions refer to: http://www.hp.com/go/clientmanagement.

Client Security Software

Absolute Persistence Module [4]
HP Security Manager
Microsoft Security Essentials (Windows 7 only)[11]
Microsoft Defender (Windows 8.1 and 10 only)

Standard Features and Configurable Components (availability may vary by country)

Standard

TPM 1.2
Smart Card Reader
Security lock slot
Preboot Authentication

For more information on HP Client Security Software Suite, refer to http://www.hp.com/go/clientsecurity.

Footnotes:

[1] Available only on business PCs with HP BIOS.

[2] May require a manual recovery step if all copies of BIOS are compromised or deleted. BIOS adheres to NIST SP800-147.

[3] For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.

[4] Absolute agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: http://www.absolute.com/company/legal/agreements/computrace-agreement. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

[7] Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. Miracast is available for Windows 8.1 and Windows 10. For more information: http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast

[8] Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see www.hp.com/go/businessmobileprinting). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.

[9] Not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.

[10] Subscription required.

[11] Opt in and internet connection required for updates.

AMD DASH CAPABLE

The DASH standards are designed to assist in the remote management of common desktop infrastructure tasks, such as deploying new operating systems, monitoring of computer system health, power control and power state monitoring, and asset inventory collection. As new hardware technologies are introduced or additional requirements are placed on the IT infrastructure, DASH will continue to evolve to include new functionality.

DASH has been designed to solve many of the pitfalls and constraints of previous management standards by leveraging well-proven technologies from the Service Oriented Architecture domain, advancements in security standards, and extensive modeling of management components, configuration data and relationships first introduced in the server management domain.

DASH is a web services-based management protocol and relies on security and network routing concepts familiar to web site and web services administrators.

Not all configuration components are available in all regions/countries.

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Standard Features and Configurable Components (availability may vary by country)

Key Features

- Service availability without the requirement of an installed operating system and/or system power states
- Interoperability between various DASH-capable device implementations and management consoles
- Descriptive data model allowing for the discovery of iterative specification updates (new profiles) or vendor-specific extensions (custom profiles)
- Well understood transport level security (HTTPS basic and digest authentication models with optional TLS client/server certificate support)
- Secured setup with support for multiple DASH users and multiple access roles (administrator, operator, auditor)
- Forward POST logs to specified destination
- Monitor and inventory the HW of the managed clients

Management Profiles

A management profile is a specification that defines a normative set of behaviors and characteristics for addressing a particular management domain.

A profile consists of the following information:

- A data model representing the problem domain that consists of objects, properties and methods exposed by the profile
- Use cases to be addressed by the profile
- Steps required to traverse the data model and derive results

When a substantive block of new profiles become available, or fundamental changes are introduced to the DASH ecosystem, the DASH Implementation Requirements document is updated to reflect a new version of the standard. Profiles are continually being developed by the DMTF and DASH is designed to support them as they become available.

AMD STANDARD MANAGEABILITY

- Boot Control
- HW Inventory
- SW Inventory
- Power State Management
- HW Alerting

Includes DASH 1.1 compliance plus:

- System Defense
- Agent Presence
- CISCO NAC/SDN support
- Host Based Configuration
- IPv6 Support

Feature	DMTF Specification(s)
DSP1058	Base Desktop and Mobile Profile
DSP1033	Profile Registration Profile
DSP1039	Role Based Authorization Profile
DSP1034	Simple Identity Management Profile
DSP0226	WS-Management Specification
DSP0227	WS-Management CIM Binding Spec
DSP0230	WS-CIM Mapping Specification

Standard Features and Configurable Components (availability may vary by country)

DSP1022	CPU Profile
DSP1027	Power State Management Profile
DSP1026	System Memory Profile

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Technical Specifications – Graphics

GRAPHICS

Integrated AMD HD Graphics

VGA Controller	Integrated
DisplayPort	- DP++ - DisplayPort audio: - Linear PCM, Dolby Digital (AC-3), Dolby® TrueHD, DTS Studio Sound™ - LPCM at sample rates: 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz, Bits per sample: 16, 20, and 24 - Supports up to 8 channels 4, 2, or 1-lane transmission 5.4 Gbps (HBR2), 2.7 Gbps, and 1.62 Gbps link bit rates - DisplayPort Multi-Stream Transport (MST) for up to four independent video and audio streams on one connector - Maximum resolution of 4096 x 2160 at 30 Hz and 24 bpp (single stream) - Supports 2560 x 1600 at 60 Hz (single stream) - Support for tiled displays with resolution of up to 4096 x 2160 at 60 Hz DisplayPort 1.2 MST Supports stereoscopic 3D gaming, Blu-ray 3D, and stereoscopic 3D video for 120-Hz frame sequential monitors
Memory	Allocated at system startup and configurable using F10 setup with values of 128MB, 256MB, 512MB and 1024MB. Additional memory that is not in use by the host will be dynamically allocated and will vary depending on the total installed system memory.

Maximum Graphics Memory	Microsoft Windows 7	Windows 8.1
	Variable*	Variable*

* Actual amount of maximum graphics memory can vary depending on the amount of installed system memory

Maximum Color Depth	32 bits/pixel, 8-bits per color component
Graphics/Video API Support	- Discrete-level graphics processor embedded alongside the x86 CPU complex - Dedicated graphics memory controller

AMD Eyefinity
AMD Eyefinity support for up to four displays when at least two displays are operating with DisplayPort 1.2 multi-streaming.

Power Management

- AMD PowerPlay™ power management technology
  - Dynamic power gating for GPU, UVD, VCE, GFX, DCE, and Graphics Memory Controller (GMC)
- Dynamic refresh rate supported with digital panels that support this feature
- Dynamic refresh rate
- Frame Buffer Compression
- Panel Self-Refresh

3D Acceleration Features
DirectX® 11.1 compliant, including full speed 32-bit floating point per component operations:

- Shader Model 5 geometry and pixel support in a unified shader architecture
  - Graphics Core Next (GCN) architecture
  - Advanced shader instructions, including flexible flow control with CPU-level flexibility on branching

Technical Specifications – Graphics

- o Read/Write caching system, replacing texture cache with a unified read-write two-level cache
  - o Vertex, pixel, geometry, compute, domain, and hull shaders
  - o 32-bit and 64-bit floating point processing per component
  - o High performance dynamic branching and flow control
  - o Shader instruction store, using an advanced caching system
  - o Advanced shader design, with ultra-threading sequencer for high efficiency operations
  - o Advanced, high performance branching support, including static and dynamic branching
  - o High dynamic range rendering with floating point blending, texture filtering, and anti-aliasing support
  - o 16-bit and 32-bit floating point components for high dynamic range computations
  - o Full anti-aliasing on render surfaces up to and including 128-bit floating point formats
- Support for OpenCL™ 1.2, DirectCompute 11 and Microsoft C++ AMP
- Support for OpenGL 4.1/4.1+

Motion Video Acceleration Features

- Supports DVD, Blu-ray, and SDTV/HDTV content playback with low CPU usage
- Supports stereoscopic 3D Blu-ray
- Video compression engine:
  - o Dedicated hardware (VCE 2.0) assisted encoding of HD video streams to H.264 (main profile)
  - o Support H.264 SVC temporal scalability
  - o Real-time transcoding by encoding the output from UVD with reduction of CPU utilization and power consumption
- Motion video decode acceleration technology:
  - o Dedicated hardware (UVD) for H.264, MPEG4, VC-1, MVC, and MPEG2 decode:
    - ▪ H.264 implementation based on the ISO/IEC 14496-10 specification
    - ▪ MPEG**6** implementation based on the ISO/IEC 14496-2 specification
    - ▪ VC-1 implementation based on the SMPTE 421M specification
    - ▪ MPEG2 implementation based on the ISO 13818-2 specification
    - ▪ Multi View Coding (MVC) for Blu-ray 3D content
    - ▪ WMV-9 implementation
  - o Real time high-definition and standard definition stream decode
  - o Real time dual high-definition stream decode

Supported Display Resolutions and Refresh Rates
Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP

SUPPORTED DVI-D (DIGITAL) AND DISPLAYPORT DISPLAY MODES Resolution	Depth (BPP)	Refresh Rate (Hz)
320x200	8, 16, 32	60
320x240	8, 16, 32	60
400x300	8, 16, 32	60
480x360	8, 16, 32	60
512x384	8, 16, 32	60
640x350	8, 16, 32	60
640x400	8, 16, 32	60
640x480	8, 16, 32	60
720x480	8, 16, 32	60
720x576	8, 16, 32	60
800x600	8, 16, 32	60
1024x768	8, 16, 32	60
1152x864	8, 16, 32	60
1280x720	8, 16, 32	60
0.98M9 (1280x768)	8, 16, 32	60
1280x960	8, 16, 32	60

Not all configuration components are available in all regions/countries.
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Technical Specifications – Graphics

1280x1024	8, 16, 32	60
1.30MA (1440x900)	8, 16, 32	60, 75
1600x900	8, 16, 32	60
1.64MA (1600x1024)	8, 16, 32	60
1600x1200	8,16, 32	60
1.76MA (1680x1050)	8, 16, 32	60
1.76MA-R (1680x1050)	8, 16, 32	75-R
2.07M9-R (1920x1080)	8, 16, 32	60-R
2.30MA-R (1920x1200)	8, 16, 32	60-R
2560x1440	8, 16, 32	60
2560x1600	8, 16, 32	60

VGA AND DVI-A (ANALOG) DISPLAY MODES

Resolution	Depth (bpp)	CRT Refresh Rate (Hz)
320x200	8, 16, 32	60, 75, 85
320x240	8, 16, 32	60, 75, 85
400x300	8, 16, 32	60, 75, 85
480x360	8, 16, 32	60, 75, 85
512x384	8, 16, 32	60, 75, 85
640x350	8, 16, 32	60, 75, 85
640x400	8, 16, 32	60, 75, 85
640x480	8, 16, 32	60, 75, 85
720x480	8, 16, 32	60, 75, 85
720x576	8, 16, 32	50, 60, 75, 85
800x600	8, 16, 32	60, 75, 85
1024x768	8, 16, 32	60, 75, 85
1152x864	8, 16, 32	60, 75, 85
1280x720	8, 16, 32	60, 75, 85
0.98M9 (1280x768)	8, 16, 32	60, 75, 85
1280x960	8, 16, 32	60, 75, 85
1280x1024	8, 16, 32	60, 75, 85
1.30MA (1440x900)	8, 16, 32	60, 75
1600x900	8, 16, 32	60, 75, 85
1.64MA (1600x1024)	8, 16, 32	60, 75, 85
1600x1200	8, 16, 32	60, 75, 85
1.76MA (1680x1050)	8, 16, 32	60, 75
1920x1080	8, 16, 32	60, 75, 85
2.30MA (1920x1200)	8, 16, 32	60, 75, 85
1920x1440	8, 16, 32	60, 75, 85
2048x1536	8, 16, 32	60, 75

AMD Radeon™ R9 350 2GB PCIe x16

Memory	2GB 128-bit wide frame buffer operating at 1150MHz.
Controller Clock Speed	AMD® Radeon™ R9 350 GPU operating at 925 MHz
Multidisplay Support	A maximum of 4 displays are supported by the card. A maximum of 2 legacy displays (Native VGA, DVI, or displays connected with passive DisplayPort adapters are considered as legacy)
Graphics /API support	DIRECTX 12, Open GL 4.3, Open CL1.2, UVD 3
Output Connectors	1 x Dual-Link DVI-I, 2x DisplayPort; Includes DVI to VGA adapter

Supported Display Resolutions and Refresh Rates
Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP

Not all configuration components are available in all regions/countries.

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Technical Specifications – Graphics

Resolution	Refresh Rate*	VGA (DVI-VGA adapter)	DVI-D	DisplayPort	Standard
640 x 480	60, 75, 85	X	X	X	VESA DMT, CVT 0.31M3
720 x 400	70	X	X	X	IBM VGA
800 x 600	60, 75, 85	X	X	X	VESA DMT, CVT0.48M3
1024 x 768	60, 75, 85	X	X	X	VESA DMT, CVT 0.79M3
1152 x 864	60, 75, 85	X	X	X	VESA DMT, CVT 0.83MA
1280 x 720	60, 75, 85	X	X	X	VESA DMT, CVT 0.92M9, CEA–770.3
1280 x 768	60, 60RB, 75, 85	X	X	X	VESA DMT, CVT 0.98M9/0.98M9–R
1280 x 800	60, 75, 85	X	X	X	VESA DMT
1280 x 960	60, 75, 85	X	X	X	VESA DMT
1280 x 1024	60, 75, 85	X	X	X	VESA DMT, CVT 1.31M4
1366 x 768	60, 60RB	X	X	X	VESA DMT
1440 x 900	60, 60RB	X	X	X	VESA DMT
1600 x 900	60, 60RB, 75, 85	X	X	X	VESA DMT
1680 x 1050	60, 60RB, 75	X	X	X	VESA DMT, CVT 1.76MA/1.76MA–R
1920 x 1080	60	X	X	X	VESA DMT, CVT 2.07M9, SMPTE 274M
1920 x 1200	60, 60RB, 75, 85	X	X	X	DMT, CVT 2.30MA/2.30MA–R
1600 x 1200	60, 75, 85	X	X	X	VESA DMT, 1.92M3
1920 x 1440	60, 75, 85	X	X	X	VESA DMT, CVT 2.76M3
2048 x 1536	60,75	X	X	X	CVT 3.15M3
2560 x 1440	59.951		X	X	CVT 3.69M9–R
2560 x 1600	60, 60RB		X	X	VESA DMT, CVT 4.10MA/4.10MA–R
3840 x 2160	24			X	CVT-RBv1/v2 (8.29M9–R), SMPTE 274M
3840 x 2160	25			X	CVT-RBv1/v2 (8.29M9–R), SMPTE 274M
3840 x 2160	30		X	X	CVT-RBv1/v2 (8.29M9–R), SMPTE 274M
3840 x 2160	50			X	CVT-RBv1/v2 (8.29M9–R), SMPTE 274M
3840 x 2160	60			X	CVT-RBv1/v2 (8.29M9–R), SMPTE 274M
4096 x 2160	24			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	25			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	30			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M

Technical Specifications – Graphics

4096 x 2160	50			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	60			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
1920 x 1080	60		X	X	VESA (SMPTE 274M)
1920 x 1080	50		X	X	SMPTE 274M
1920 x 1080	30		X	X	SMPTE 274M
1920 x 1080	24		X	X	SMPTE 274M
1280 x 720	60		X	X	VESA (CEA-770.3)
1280 x 720	50		X	X	SMPTE 296M
720 x 480	60		X	X	MHL (CEA-770.2)

* >60 refresh rates only for analog (VGA) signaling

NVIDIA® GeForce® GT 730 2GB PCIe x8 Graphics Card

Introduction	Get impressive graphics and high resolution dual-display performance in a low profile, PCI Express x8 graphics add-in card based on the NVIDIA® Kepler™ Graphics Processor. Improve your everyday PC, Web conferencing, and video or photo editing.
Memory	2GB DDR3 64-bit wide frame buffer operating at 900 MHz
Controller Clock Speed	NVIDIA® Kepler™ GPU operating at 902 MHz
Multi-display Support	A maximum of 4 displays are supported by the card.
Graphics /API support	Supports Microsoft DirectX 12, OpenGL 4.4 and OpenCL 2 APIs, Shade Model 5, UVD 4.2, VCE 2.0, and DirectCompute 11
Output Connectors	1 x Dual-Link DVI-I, 1x DisplayPort; Includes DVI to VGA adapter Display Port output is multi-mode capable, support Audio, HBR2 and MST

Supported Display Resolutions and Refresh Rates
Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP

Resolution	Refresh Rate*	VGA (DVI-VGA adapter)	DVI-D	DisplayPort	Standard
640 x 480	60, 75, 85	X	X	X	VESA DMT, CVT 0.31M3
720 x 400	70	X	X	X	IBM VGA
800 x 600	60, 75, 85	X	X	X	VESA DMT, CVT0.48M3
1024 x 768	60, 75, 85	X	X	X	VESA DMT, CVT 0.79M3
1152 x 864	60, 75, 85	X	X	X	VESA DMT, CVT 0.83MA
1280 x 720	60, 75, 85	X	X	X	VESA DMT, CVT 0.92M9, CEA-770.3

Technical Specifications – Graphics

1280 x 768	60, 60RB, 75, 85	X	X	X	VESA DMT, CVT 0.98M9/0.98M9-R
1280 x 800	60, 75, 85	X	X	X	VESA DMT
1280 x 960	60, 75, 85	X	X	X	VESA DMT
1280 x 1024	60, 75, 85	X	X	X	VESA DMT, CVT 1.31M4
1366 x 768	60, 60RB	X	X	X	VESA DMT
1440 x 900	60, 60RB	X	X	X	VESA DMT
1600 x 900	60, 60RB, 75, 85	X	X	X	VESA DMT
1680 x 1050	60, 60RB, 75	X	X	X	VESA DMT, CVT 1.76MA/1.76MA-R
1920 x 1080	60	X	X	X	VESA DMT, CVT 2.07M9, SMPTE 274M
1920 x 1200	60, 60RB, 75, 85	X	X	X	DMT, CVT 2.30MA/2.30MA-R
1600 x 1200	60, 75, 85	X	X	X	VESA DMT, 1.92M3
1920 x 1440	60, 75, 85	X	X	X	VESA DMT, CVT 2.76M3
2048 x 1536	60,75	X	X	X	CVT 3.15M3
2560 x 1440	59.951		X	X	CVT 3.69M9-R
2560 x 1600	60, 60RB		X	X	VESA DMT, CVT 4.10MA/4.10MA-R
3840 x 2160	24			X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
3840 x 2160	25			X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
3840 x 2160	30		X	X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
3840 x 2160	60			X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
4096 x 2160	24			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	25			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	30			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	60			X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
1920 x 1080	60		X	X	VESA (SMPTE 274M)
1920 x 1080	50		X	X	SMPTE 274M
1920 x 1080	30		X	X	SMPTE 274M
1920 x 1080	24		X	X	SMPTE 274M
1280 x 720	60		X	X	VESA (CEA-770.3)
1280 x 720	50		X	X	SMPTE 296M
720 x 480	60		X	X	MHL (CEA-770.2)
720 x 576	50		X	X	ITU-R BT.1358
640 x 480	60		X	X	CEA (VESA DMT)

* >60 refresh rates only for analog (VGA) signaling

Technical Specifications – Graphics

NVIDIA® NVS™ 310 Graphics Card (Not allowed when 180W chassis and 65W processor both are selected on 400/480/490/498 MT)		
Introduction	The NVIDIA® NVS™ 310 Graphics Card is a PCI Express low profile form factor graphics add-in card targeted as an active low cost graphics solution for the corporate business and enterprise markets. The NVIDIA® NVS™ 310 graphics card is an ideal solution for customers requiring a small form factor graphics add-in card for either standard or small form factor PC designs.	
Performance and Features	The NVIDIA® NVS™ 310 Graphics Card offers 1GB of ultrafast DDR3 memory and is capable of supporting up to 2 displays. DisplayPort connector supports multimode technology to support connection to DVI-D, VGA and HDMI monitors with optional adapters in kits NR078AA, FH973AT, BP937AA, AS615AA. For a DisplayPort to DisplayPort connections use the optional DisplayPort Cable Kit VN567AA.	
Form Factor	Low Profile: 2.713 × 6.15 in	
Graphics Controller	NVIDIA® NVS™ 310	
Memory Clock	875MHz	
Memory Size	1GB DDR3	
Memory Bandwidth	14 GB/s	
Max. Power	19.5W	
Display Max. Resolution	Up to 2560 x 1600 (digital display) per display	
Display Output	Up to 2 displays in the following configurations	
	DisplayPort output:	• Drives two DisplayPort enabled digital display at resolutions up to 2560 × 1600 at 60 Hz with reduced blanking, when connected natively using the 2 DisplayPort connectors on the NVS 310 graphics card • Supports 2 monitors up to resolution of 1920 × 1200 at 60 Hz with reduced blanking using DisplayPort Multi-Stream topology technology.
	DVI-D output:	• Drives two digital display at resolutions up to 1920 × 1200 at 60 Hz with reduced blanking using DisplayPort to DVI-D single-link cable adaptors • Drives two digital display at resolutions up to 2560× 1600 at 60 Hz with reduced blanking using DisplayPort to DVI-D dual-link cable adaptors

Not all configuration components are available in all regions/countries.
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Technical Specifications – Graphics

	HDMI output:	• NVS 310 is capable of driving two high definition (HD) panels up to resolutions of 1920 × 1080P at 60 Hz using DisplayPort to HDMI cable adaptors
	VGA display output:	• Drives two analog display at resolutions up to 1920 × 1200 at 60 Hz using DisplayPort to VGA cable adaptors

Supported Display Resolutions and Refresh Rates
Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP

Resolution	Maximum Refresh Rates (Hz) by Connection			
	DisplayPort to VGA	DisplayPort to DVI-D	DisplayPort to HDMI	DisplayPort
640 x 480	85	60	60	60
800 x 600	85	60	60	60
1024 x 768	85	60	60	60
1280 x 720	85	60	60	60
1280 x 1024	85	60	60	60
1440 x 900	75	60	60	60
1600 x 1200	60	60	60	60
1680 x 1050	60	60	60	60
1920 x 1080	60-R	60-R	60	60
1920 x 1200	60-R	60-R		60
1920 x 1440				60
2048 x 1536				60

Technical Specifications – Hard Disk and Solid State Storage

HARD DISK AND SOLID STATE STORAGE

Introduction:

HP Serial Advanced Technology Attachment (SATA) Hard Drives maximize the performance of HP Business PCs by providing the technologies to meet your increasing storage demands with high-capacity drives offering superior reliability and performance.

SATA provides faster data transfer speeds, better system cooling airflow, more bandwidth, more headroom for speed increases in future generations and better data integrity. A next-generation technology, the SATA interface connects hard drives to the PC platform enabling easy aggregation of multiple hard drives into a single PC. This offers you the additional benefits of dedicated bandwidth, the ability to more easily identify device failures and scalability. The HP EliteDesk 705 G2 Series Business PC supports the latest SATA 6.0Gb/s specification.

HP Drive Lock

HP Serial ATA Hard Drives offer enhanced security via a new Drive Lock. When enabled, this ATA security feature set prevents software access to user data on the drive until one or two user-defined passwords are provided.

SMART IV Technology

Self-Monitoring Analysis and Reporting Technology (SMART) hard drive technology allows hard drives to monitor their own health and to raise flags if imminent failures are predicted. If the drive determines that a failure is imminent, the SMART hard drive technology enables the intelligent manageability or management software to generate a fault alert. While the current versions of SMART hard drives do a good job monitoring the data on the hard drive media, the ever increasing emphasis on reliability and quality has promoted HP to implement SMART IV technology which constantly checks that the data flow from host interface to media and media to host interface is not compromised. This is accomplished by inserting a 2 byte parity code into every 512 byte block in the data path of the hard drive's Cache RAM. This unique parity checking performed by HP's SMART IV technology hard drives, allows for more complete error detection coverage encompassing the entire data path between the host and the hard drive.

Smart IV is also known as IOEDC: I/O Error Detection Code.

Native Command Queuing

NCQ or Native Command Queuing is a SATA protocol extension that allows the hard drive to have several write or read commands outstanding at the same time. In contrast, normal non-queued operation requires each command to be completed before the next command is issued by the host system. Queuing allows the drive to complete the commands in the order that allows for best overall throughput. It also involves an advanced method of transferring data to or from the host, called First Party Direct Memory Access (FPDMA), which allows the hard drive and the host controller to manage the data transfers for multiple outstanding commands, without involving the host processor. NCQ can contribute to better performance but the results are dependent on many factors, including the access patterns of the various applications and operating system functions that are initiating drive accesses. Enabling NCQ features in the hard drive requires AHCI support from the host system BIOS, controller, and driver. AHCI support is typically implemented in RAID configurations.

***NOTE:** For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Redundant Array of Independent Drives (RAID) – Support RAID 0 and 1

Flexible implementation:

- RAID 0 (Striping)
- RAID 1 (Mirroring)
- Configurable email alerts

Technical Specifications – Hard Disk and Solid State Storage

- RAID management software
- DPS Self-Test can be executed on physical hard drives while in RAID mode.
- The RAID Setup Utility (accessed through CTRL-R) can be protected by the F10 Setup password.

NOTE:

- HP tests and supports RAID 0.
- RAID 1 is the only RAID configuration offered via factory configurations. The pre-configured systems:
    - Are only available on the SFF and TWR form factors. The DM form factors do not support RAID as they do not allow for multiple common storage drives.
    - Are complete RAID systems and have both drives installed.
    - Have the necessary Option ROM configuration.
    - Include a preinstalled operating system that is mirrored mode out of the box.

HP 128 GB Turbo Drive SSD-M.2 PCIe Card*

Unformatted Capacity	128 GB*	
Interface	M.2 PCIe x4 Gen 2	
Architecture	Solid State Drive M.2 PCIe Gen 2 x4 AHCI; NCQ Command Set	
Form Factor	M.2 2280	
Dimensions (Width x Length x Thickness)	.899 x 3.149 x .146 in (22 x 80 x 3.73 mm)	
Weight	0.017 lb (8 g) Max	
Bandwidth Performance - Performance measured using IOMeter 2008 on Windows 8 64bit. Actual performance may vary depending on use conditions and environment.	Sustained Sequential Read (128KB):	Up to 920 MB/ss
	Sustained Sequential Write (128KB):	Up to 430 MB/s
	Random Read (4KB):	up to 8500 IOPs
	Random Write (4KB):	up to 32000 IOPs
Power	Allowable voltage	3.3V ± 5%
	Total power consumption:	5.8 W (Active) ; 80 mW; (Idle)
MTBF	1.5 M hours	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 95%
	Shock:	1,500 G
Regulations	Safety TUV UL CB c-UL-us	TUV
		UL CB

Not all configuration components are available in all regions/countries.
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		c-UL-us
		TUV
	EMC/EMI	CE (EU)
		BSMI (Taiwan)
		KCC (South Korea)
		VCCI (Japan)
		C-Tick (Austrailia)
		FCC (USA)
*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.		

HP 256 GB Turbo Drive SSD-M.2 PCIe Card*

Formatted Capacity	256 GB	
Architecture	Solid State Drive M.2 PCIe Gen 2 x4 AHCI; NCQ Command Set	
Interface	M.2 PCIe Gen 2 x4	
Form Factor	M.2 2280	
Height	7 mm ± 0.20	
Width	.8 mm ± 0.08	
Length	50 mm ± 0.15	
Weight (typical)	Up to 10 g	
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 2150 MB/s
	Sequential Write	Up to 1200 MB/s
Power Watts	Power consumption (avg):	Power-Up: N/A Read: 4 W Write: 5.1 W Standby: 700 mW Idle: 70 mW
	Operating Temperature:	32° to 158° F (0° to 70° C)

Not all configuration components are available in all regions/countries.

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Technical Specifications – Hard Disk and Solid State Storage

Environmental (all conditions, non-condensing)	Relative Humidity:	5% to 95%
	Shock (Linear 2 m/Sec half-sine):	1000 G peak (operating)

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

HP 512GB Turbo Drive G2 SSD-M.2 PCIe Card*

Formatted Capacity	512,288 MB	
Architecture	Solid State Drive M.2 PCIe Gen 3 x4 NVMe; NVMe 1.1a Compliant	
Interface	M.2 PCIe Gen 3 x4 NVMe	
Form Factor	M.2 2280 DS	
Height	22 mm ± 0.16	
Width	.8 mm ± 0.08	
Length	50 mm ± 0.15	
Weight (typical)	Up to 10 g	
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 2150 MB/s
	Sequential Write	Up to 1550 MB/s
Power Watts	Power consumption (avg):	Power-Up: N/A Read: 4.3 W Write: 6.5 W Standby: 700 mW Idle: 70 mW
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock (Linear 2 m/Sec half-sine):	1000 G peak (operating)

Not all configuration components are available in all regions/countries.
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Technical Specifications – Hard Disk and Solid State Storage

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

120 GB SATA 2.5" Non-SED SSD*

Unformatted Capacity	120 GB	
Architecture	Multi-Level Cell (MLC) NAND	
Interface	Serial ATA 3.0 (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	Low profile, 7mm height	
Width	69.85 mm ± 0.25	
Length	100.45 mm max	
Weight	Up to 78 g	
Bandwidth Performance	Sustained Sequential Read:	Up to 540 MB/s
	Sustained Sequential Write:	Up to 480 MB/s
Power	Power consumption:	Average: Read <3.7W; Write 3.7W; Standby <55mW
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1,500 G/0.5 ms

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Not all configuration components are available in all regions/countries.

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Technical Specifications – Hard Disk and Solid State Storage

120 GB SATA 2.5" Opal2 SED Solid State Drive (Pro 2500)*

Unformatted Capacity	120 GB 234,441,648 (Total Logical Sectors)	
Architecture	ATA 8 Compliant and SATA 3.0 compliant Supports Mode 2 Multiword DMA Supports Drive Failure Prediction Supports SMART Offline Read Scan Supports Mode 4 PIO Supports Mode 5 UDMA Supports HP Drive Protection System ATA 8 ACS-2 Data / TRIM Support Support DEVSLP feature Supports TRIM Command per ATA8 / ACS 2 Supports FIPS-197 features Support TCG Storage Architecture Core Specification 2.0	
Interface	Serial ATA 3.0 (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	Low profile, 7mm height	
Width	69.85 mm ± 0.25	
Length	100.45 mm max	
Weight	Up to 78 g	
Bandwidth Performance	Sustained Sequential Read:	Up to 540 MB/s
	Sustained Sequential Write:	Up to 480 MB/s
Power	Power consumption:	Average: Read <3.7W; Write 3.7W; Standby <55mW
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1,500 G/0.5 ms

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Not all configuration components are available in all regions/countries.

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Technical Specifications – Hard Disk and Solid State Storage

128 GB SATA 2.5" Opal2 SED Solid State Drive*

Unformatted Capacity	128 GB 250,069,680 (User Addressable Sectors)
Architecture	Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface. Trusted Computing Group(TCG) OPAL compliant encrypted solid state drive
Interface	Serial ATA (6.0 Gb/s)
Form Factor	2.5 inch
Height	6.80 mm ± 0.20
Width	69.85 mm ± 0.25
Length	100.20 mm ± 0.25
Weight	Up to 73 g
Bandwidth Performance	Sustained Sequential Read:	Up to 520 MB/s
	Sustained Sequential Write:	Up to 340 MB/s
Power	Power consumption:	Active: 0.78A / 3.891W; Idle: 0.005A / 0.026W
Mean Time Between Failure (MTBF)	1,500,000 hours
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1,500 G/0.5 ms

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

HP 128 GB 2.5" (non-SED) Solid State Drive*

Unformatted Capacity	128 GB*
Architecture	Multi Level Cell (MLC) NAND
Interface	SATA 6 GB/sec
Dimensions (W x H x D)	2.75 x 0.276 x 3.96 in (6.985 x 0.7 x 10.05 cm)

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Technical Specifications – Hard Disk and Solid State Storage

Weight	0.16 lb (73 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 450 MB/ss
	Sustained Sequential Write:	Up to 260 MB/s
	Random Read (4KB):	up to 46K IOPs
	Random Write (4KB):	up to 56K IOPs
Latency	Read:	55ms (TYP)
	Write:	55ms (TYP)
Power	DC power requirement:	Min 4.5 V; Max 5.5 V
	Total power consumption:	160 mW (Active) ; <85 mW; (Idle)
Useful Drive Life	1.2 million device hours**	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 95%
	Shock:	1,500 G/1.0 msec
Regulations	UL, CSA, EN 60950-2000, CISPR Pub 22 Class B, CNS 13438, AS/NZS CISPR 22:2002 Class B, Korea KCC, CE Mark	

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

128 GB SATA 2.5" TLC Solid State Drive*

Formatted Capacity	128 GB
Architecture	Solid State Drive with SATA interface; ATA 8 Compliant and SATA 3.2 compliant
Interface	Serial ATA 3 (6.0 Gb/s)
Form Factor	2.5 inch
Height	7 mm ± 0.20
Width	69.85 mm ± 0.25
Length	100.2 mm ± 0.25

Technical Specifications – Hard Disk and Solid State Storage

Weight (typical)	36.5 g (+2)	
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 500 MB/s
	Sequential Write	Up to 300 MB/s
Power Watts	Power consumption (avg):	Read: 95 mW Write: 95 mW Standby: 70 mW DEVSLP: <7 mW
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock (2 m Sec half-sine):	1500 G peak 0.5ms (operating)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Intel® Pro 2500 180 GB Solid State Drive*

Unformatted Capacity	180 GB*	
Architecture	Multi Level Cell (MLC) NAND	
Interface	SATA 3.0 (6.0 Gb/s)	
Dimensions (W x H x D)	6.98 x 0.7 x 10.05 cm	
Weight	78 g	
Bandwidth Performance	Sustained Sequential Read:	Up to 540 MB/s
	Sustained Sequential Write:	Up to 490 MB/s
	Random Read (4KB):	up to 41K IOPs
	Random Write (4KB):	up to 80K IOPs
Latency	Read:	80 us
	Write:	85 us
Power	DC power requirement:	5 VDC 5%-100 mV ripple p-p
	Total power consumption:	195 mW (Active); 55 mW (Idle)
Useful Drive Life	72TB written, up to 40GB/day for 5 years **	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 95%

Not all configuration components are available in all regions/countries.
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*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Technical Specifications – Hard Disk and Solid State Storage

180 GB SATA Opal2 SED SSD (Intel® Pro 2500)*

Formatted Capacity	180 GB
Architecture	Solid State Drive with SATA interface; ATA 8 Compliant and SATA 3.0 compliant
Interface	Serial ATA 3 (6.0 Gb/s)
Form Factor	2.5 inch
Height	7 mm ± 0.5
Width	69.85 mm ± 0.25
Length	100.45 mm Max
Weight (typical)	Up to 78 g

Data Transfer Rate (128k Sequential)	Sequential Read	Up to 540 MB/s
	Sequential Write	Up to 490 MB/s

Power Watts	Power consumption (avg):	Power-Up: 6W (max)
		Read: <3.7W
		Write: 3.7W
		Standby: <55mW
		DEVSLP: <7mW

Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1500 G Max - operating (operating)

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

HP 1 TB 7.2K SATA 6.0Gb/s 2.5" Hard Disk Drive

Capacity	1,000,204,886,016 bytes
Rotational Speed	7,200 rpm
Interface	SATA 6 Gb/s

Not all configuration components are available in all regions/countries.
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Technical Specifications – Hard Disk and Solid State Storage

Buffer Size	32 MB	
Logical Blocks	1,953,525,168	
Seek Time (typical reads, includes controller overhead, including settling)	Single Track:	2.0 ms
	Average:	12 ms
	Full-Stroke:	25 ms
Height (nominal)	0.374 in/9.5 mm	
Width (nominal)	Media diameter: 2.5 in/63.5 mm	
	Physical size: 2.75 in/70 mm	
Operating Temperature	41° to 131° F (5° to 55° C)	

HP 1 TB SATA 6G 2.5" 8GB Solid State Hybrid Drive (SSHD)*

Formatted Capacity	1 TB	
Spindle Speed	5,400 rpm +/- 0.2%	
Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash	
Interface	SATA 6 Gb/s	
Cache Buffer	64 MB	
NAND Flash Commercial Multilevel Cell (cMLC)	8 GB	
Number of Sectors	976,773,168	
Seek Time (typical reads)	Single Track:	2.0 ms
	Average:	12 ms
Height	0.374 +/-.008 in (9.5 +/- 0.2 mm)	
Width	2.750 +/- 0.010 in (69.85 +/- 0.25 mm)	
Length	3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm)	
Weight	0.254 lb/115 g (max)	
Operating Temperature	41° to 131° F (5° to 55° C)	

Not all configuration components are available in all regions/countries.
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Technical Specifications – Hard Disk and Solid State Storage

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

256 GB SATA 2.5" Opal2 SED Solid State Drive*

Unformatted Capacity	256 GB 500,118,192 (User Addressable Sectors)	
Architecture	Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface. Trusted Computing Group(TCG) OPAL compliant encrypted solid state drive	
Interface	Serial ATA (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	6.80 mm ± 0.20	
Width	69.85 mm ± 0.25	
Length	100.20 mm ± 0.25	
Weight	Up to 73 g	
Bandwidth Performance	Sustained Sequential Read:	Up to 520 MB/s
	Sustained Sequential Write:	Up to 460 MB/s
Power	Power consumption:	Active: 3.891W; Idle: 0.085W
Mean Time Between Failure (MTBF)	1,500,000 hours	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1,500 G/0.5 ms

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Not all configuration components are available in all regions/countries.
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Technical Specifications – Hard Disk and Solid State Storage

256 GB SATA (non-SED) Solid State Drive*

Unformatted Capacity	256 GB*
Architecture	Three storage layers: • Volatile cache - DDR DRAM cache • nCache™ - A non-volatile flash write cache • Mass storage – MLC NAND flash
Form Factor	SATA 2.5"
Dimensions **(Width x Length x Thickness)**	2.75 x 3.95 x .27 in (69.85 x 100.5 x 7 mm)
Weight	0.08 lb (36.5 g)

Bandwidth Performance	Sustained Sequential Read:	Up to 515 MB/ss
	Sustained Sequential Write:	Up to 465 MB/s
	Random Read (4KB):	up to 8500 IOPs
	Random Write (4KB):	up to 22000 IOPs
Latency	Read:	60ms (TYP)
	Write:	65ms (TYP)
Power	DC power requirement:	5V ± 5%
Useful Drive Life	Up to 2 million device hours**	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 85%
	Shock:	1,500 G/0.5 ms
Regulations	FCC Part 15 Class B, IECS-003 Class B, EN 55022 Class B, EN 55024, KCC No. 2008-39, KCC No. 2008-38, CNS 13438 2006 (full version), VCCI: VCCI rules and regulations (latest rev), AS/NZS CISPR 22: 2009	

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

256 GB SATA 2.5" TLC Solid State Drive*

Formatted Capacity	256 GB
Architecture	Solid State Drive with SATA interface; ATA 8 Compliant and SATA 2.6 compliant

Not all configuration components are available in all regions/countries.

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Interface	Serial ATA 3 (6.0 Gb/s)		
Form Factor	2.5 inch		
Height	7 mm ± 0.20		
Width	69.85 mm ± 0.25		
Length	100.2 mm ± 0.25		
Weight (typical)	36.5 g (+2)		
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 500 MB/s	
	Sequential Write	Up to 455 MB/s	
Power Watts	Power consumption (avg):	Read: 95 mW Write: 95 mW Standby: 70 mW DEVSLP: <7 mW	
Environmental (all conditions, non-condensing)	Operating Temperature:		32° to 158° F (0° to 70° C)
	Relative Humidity:		5% to 95%
	Shock (2 m Sec half-sine):		1500 G peak 0.5ms (operating)
*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.			

HP 2 TB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

Formatted Capacity	2 TB	
Rotational Speed	7,200 rpm	
Interface	SATA 6Gb/s NCQ	
Cache, Multisegmented (MB)	64 MB	
Seek Time (average)	Read	<8.5 ms
	Write	<9.5 ms
Height	1.028 in/26.11 mm	
Width	4.0 in/101.6 mm	

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Depth	5.787 in/146.99 mm
Weight	1.38 lb/626 g
Operating Temperature	32° to 140° F (0° to 60° C)
*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.	

HP 2TB 5400 RPM SATA 6Gb/s 2.5" Hard Disk Drive

Unformatted Capacity	2TB	
Rotational Speed	5,400RPM	
Interface	SATA 6 Gb/s	
Cache, Multisegmented (MB)	32MB	
Seek Time (average)	Read	Read
	Write	Write
Height	0.374 in / 9.5 mm	
Width	2.75 in / 70 mm	
Depth	3.94 in / 100mm	
Weight	0.29 lb / 130 g	
Operating Temperature	41° to 131° F (5° to 55° C)	

HP 500 GB 7.2K SATA 6.0Gb/s 2.5" Hard Disk Drive

Capacity	500,107,862,016 bytes	
Rotational Speed	7,200 rpm	
Interface	SATA 6 Gb/s	
Buffer Size	16 MB	
Logical Blocks	976,773,168	
	Single Track:	2.0 ms

QuickSpecs

Technical Specifications – Hard Disk and Solid State Storage

Seek Time (typical reads, includes controller overhead, including settling)	Average:	12 ms
	Full-Stroke:	25 ms
Height (nominal)	0.267 in/6.8 mm	
Width (nominal)	Media diameter: 2.5 in/63.5 mm	
	Physical size: 2.75 in/70 mm	
Operating Temperature	41° to 131° F (5° to 55° C)	

500GB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

Formatted Capacity	500,107,862,016 bytes	
Spindle Speed	7,200 rpm	
Interface	Serial ATA 3.0 (6.0 Gb/s)	
Buffer Size	16 MB	
Logical Blocks	976,773,168	
Seek Time (average)	Single Track:	2.0 ms
	Average:	11 ms
	Full-Stroke:	21 ms
Height (nominal)	1 in/2.54 cm	
Width (nominal)	Media diameter: 3.5 in/8.89 cm	
	Physical size: 4 in/10.2 cm	
Operating Temperature	41° to 131° F (5° to 55° C)	
*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.		

HP 500 GB SATA 6G 2.5" 8GB Solid State Hybrid Drive (SSHD)*

Formatted Capacity	500 GB
Spindle Speed	5,400 rpm +/- 0.2%
Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash
Interface	SATA 6 Gb/s
Cache Buffer	64 MB

Technical Specifications – Hard Disk and Solid State Storage

NAND Flash Commercial Multilevel Cell (cMLC)	8 GB	
Number of Sectors	976,773,168	
Seek Time (typical reads)	Single Track:	2.0 ms
	Average:	12 ms
Height	0.268 +/-.008 in (6.8 +/- 0.2 mm)	
Width	2.750 +/- 0.010 in (69.85 +/- 0.25 mm)	
Length	3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm)	
Weight	0.209 lb/95 g (max)	
Operating Temperature	41° to 131° F (5° to 55° C)	

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Not all configuration components are available in all regions/countries.
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Technical Specifications – Optical Disk Drives

HP 9.5mm Desktop G2 Slim DVD Writer Drive		
Height	9.5 mm height	
Orientation	Either horizontal or vertical	
Interface type	SATA/ATAPI	
Disc recording capacity	Up to 8.5 GB DL or 4.7 GB standard	
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel	
Weight (max)	0.31 lb (140 g)	
	DVD-R DL	Up to 6X
	DVD+R	Up to 8X
	DVD+RW	Up to 8X
	DVD+R DL	Up to 6X
	DVD-R	Up to 8X
	DVD-RW	Up to 6X
	CD-R	Up to 24X
	CD-RW	Up to 10X
	DVD-RW, DVD+RW	Up to 8X
	DVD-R DL, DVD+R DL	Up to 8X
	DVD+R, DVD-R	Up to 8X
	DVD-ROM DL, DVD-ROM	Up to 8X
	CD-ROM, CD-R	Up to 24X
	CD-RW	Up to 24X
Other Media	M disc	DVD media for storage preservation
Access time (typical reads, including settling)	Random	DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical)
	Full Stroke	DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical)
	Stop Time	6 seconds (typical)
Power	Source	Slimline SATA DC power receptacle
	DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p
	DC Current	5 VDC (< 1000 mA typical, 1600 mA maximum)
Environmental conditions (operating - non-condensing)	Temperature	41° to 122° F (5° to 50° C)
	Relative Humidity	10% to 80%
	Maximum Wet Bulb Temperature	84° F (29° C)

Not all configuration components are available in all regions/countries.

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Technical Specifications – Optical Disk Drives

HP 9.5mm Desktop G2 Slim SATA BDXL Blu-Ray Writer

Height	9.5mm height		
Orientation	Either horizontal or vertical		
Interface type	SATA/ATAPI		
Disc recording capacity	Up to 128 GB QL, 100 GB TL, 50 GB DL or 25 GB standard SL		
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel		
Weight (max)	Up to 0.29 lb (132g) without bezel		
		Triple-layer	**Quadruple-layer**
Write speeds	BD-R	Up to 4X	Up to 4X
	BD-RE	Up to 2X	Not supported
		Single-layer	**Double-layer**
	BD-R	Up to 6X	Up to 6X
	BD-RE	Up to 2X	Up to 2X
	DVD-R	Up to 8X	Up to 6X
	DVD-RW	Up to 6X	Not supported
	DVD+R	Up to 8X	Up to 6X
	DVD+RW	Up to 8X	Not supported
	CD-R	Up to 24X	
	CD-RW	Up to 10X	
	(This should be for read speeds)	**Triple-layer**	**Quadruple-layer**
	BD-R	Up to 6X	Up to 6X
	BD-RE	Up to 4X	Not supported
		Single-layer	**Double-layer**
	BD-ROM	Up to 6X	Up to 6X
	BD-R	Up to 6X	Up to 6X
Read speeds	BD-RE	Up to 6X	Up to 6X
	DVD-ROM	Up to 8X	Up to 8X
	DVD-R	Up to 8X	Up to 8X
	DVD-RW	Up to 8X	
	DVD+R	Up to 8X	Up to 8X
	DVD+RW	Up to 8X	

Not all configuration components are available in all regions/countries.
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Technical Specifications – Optical Disk Drives

	BDMV (AACS Compliant Disc)	Up to 6X/2X (Read/Play)	
	DVD-Video (CSS Compliant Disc)	Up to 8X/4X (Read/Play)	
	CD-R/RW/ROM	Up to24X	
	CD-DA(DAE)	Up to 24X/10X (Read/Play)	
Other Media	M-Disc	BR/DVD media for storage preservation	
Access time (typical reads, including settling)	Random	BD-ROM: 205 ms (typical), DVD-ROM: 185 ms (typical), CD-ROM: 165 ms (typical)	
	Full Stroke	BD-ROM: 350 ms (typical), DVD-ROM: 345 ms (typical), CD-ROM: 340 ms (typical)	
Power	Source	Slimline SATA DC power receptacle	
	DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p	
	DC Current	5 VDC -1200 mA typical, 2000 mA maximum	
Environmental conditions (operating - non-condensing)	Temperature	41° to 122° F (5° to 50° C)	
	Relative Humidity	10% to 80%	
	Maximum Wet Bulb Temperature	84° F (29° C)	

HP 9.5mm Desktop G2 Slim DVD-ROM Drive

Height	9.5mm	
Orientation	Either horizontal or vertical	
Interface type	SATA/ATAPI	
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel	
Weight (max)	Up to 0.31 lb (140g) without bezel	
Read speeds	DVD+R/-R/+RW/ -RW/+R DL /-R DL	Up to 8X
	DVD-ROM	Up to 8X
	CD-ROM, CD-R	Up to 24X
	CD-RW	Up to 24X
Access time (typical reads, including settling)	Random	DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical)
	Full Stroke	DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical)
Power	Source	Slimline SATA DC power receptacle
	DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p
	DC Current	5 VDC - <1000 mA typical, < 1600 mA maximum
	Temperature	41° to 122° F (5° to 50° C)

Not all configuration components are available in all regions/countries.
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Technical Specifications – Optical Disk Drives

Environmental (all conditions non-condensing)	Relative Humidity	10% to 80%
	Maximum Wet Bulb Temperature (operating)	84° F (29° C)

Not all configuration components are available in all regions/countries.

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Technical Specifications – Memory

System Memory Support

The HP EliteDesk 705 G2 Business PC supports DDR3L protocols with two independent, 64-bit wide channels each accessing one or two DIMMs.

- Two channels of non-ECC DDR3L unbuffered dual in-line memory modules (UDIMM) or DDR3L unbuffered small outline dual in-line memory modules (SO-DIMM) with a maximum of two DIMMs per channel
- Single-channel and dual-channel memory organization modes
- Data burst length of eight for all memory organization modes
- Memory data transfer rates of up to 1600 MT/s; actual supported data transfer rate determined by the configured processor.
- 64-bit wide channels
- DDR3L system memory I/O voltage of 1.5V
- Theoretical maximum memory bandwidth of:
    - 21.3 GB/s in dual-channel mode assuming 1333 MT/s
    - 25.6 GB/s in dual-channel mode assuming 1600 MT/s

Platform Memory Support

- The Small Form Factor (SFF) and Microtower (MT) platforms support up to four (4) industry-standard DDR3L-SDRAM DIMMs.

CAUTION: You must shut down the computer and disconnect the power cord before adding or removing memory modules. Regardless of the power-on state, voltage is always supplied to the memory modules as long as the computer is plugged in to an active AC outlet. Adding or removing memory modules while voltage is present may cause irreparable damage to the memory modules or system board.

NOTE: For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system.

Not all configuration components are available in all regions/countries.
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Technical Specifications - Networking and Communications

NETWORKING AND COMMUNICATIONS

Broadcom NetXtreme Gigabit Ethernet Plus (integrated)		
Connector	RJ-45	
System Interface	Integrated on PCA	
Controller	Broadcom BCM5762 GbE	
Memory	24 KB FIFO packet buffer memory Two Queues (Tx & Rx)	
Data rates supported	10/100/1000 Mbps	
IEEE Compliance	802.1P 802.1Q 802.1as/1588 802.3 802.3ab 802.3az 802.3u	
Bus architecture	PCI Express and SMBus	
Data transfer mode	PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state)	
Power requirement	Requires 3.3Vdc with integrated regulators Thermal Design Power (TDP) 0.535 Watts	
Boot ROM support	Yes	
Network transfer mode	Full-duplex	
	Half-duplex (not supported for the 1000BASE-T transceiver)	
Network transfer rate	10BASE-T (half-duplex) 10 Mbps	
	10BASE-T (full-duplex) 20 Mbps	
	100BASE-TX (half-duplex) 100 Mbps	
	100BASE-TX (full-duplex) 200 Mbps	
	1000BASE-T (full-duplex) 2000 Mbps	
Environmental	Operating Temperature:	0° to 85° C
	Operating Humidity:	60% RH
Management	WOL, auto MDI crossover, PXE, Muti-port teaming, RSS, Advanced cable diagnostic, Smart speed operation	
Alerting	ASF 2.0 support; DASH support	

Technical Specifications - Networking and Communications

Intel® Ethernet I210-T1 Gigabit Network Card

Connector	RJ-45
System Interface	PCI Express x1
Controller	Intel® I210 Gigabit Ethernet Controller
Memory	Integrated Dual 48K configurable transmit receive FIFO Buffers
Data rates supported	10/100/1000 Mbps
IEEE Compliance	802.1P 802.1Q 802.2 802.3 802.3AB 802.3u 802.3x flow control
Bus architecture	PCI-E 2.1
Data path width	X1, 250 MB/s, Bi-directional interface
Data transfer mode	Bus-master DMA
Hardware certifications	FCC, B, CE, TUV-c, TUVus Mark Canada and United States, TUV-GS Mark for European Union
Power requirement	Aux 3.3 V, 3.0 Watts in 1000 base-T and 1.0 Watts in 100 Base-T
Boot ROM support	Yes
Network Transfer Rate	10BASE-T (half-duplex) 10 Mbps
	10BASE-T (full-duplex) 20 Mbps
	100BASE-TX (half-duplex) 100 Mbps
	100BASE-TX (full-duplex) 200 Mbps
	1000BASE-T (full-duplex) 2000 Mbps (actual rate limited by PCI Bus)
Environmental	Operating Temperature: 32° to 131°F (0° to 55° C)
	Operating Humidity: 85% at 131° F (55° C)
Management	WOL, PXE, DMI, WFM 2.0

Intel® 7265 802.11ac 2x2 DualBand Combo PCIe x1 Card*

	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
	Interoperability	Wi-Fi certified
	Frequency Band	802.11b/g/n • 2.402 – 2.482 GHz Note:

Not all configuration components are available in all regions/countries.
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Technical Specifications - Networking and Communications

		The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels. 802.11a/n • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz Note: Indonesia no support this band)
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security[1]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power[2]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum • 802.11ac 80MHz(5GHz) : +11dBm minimum
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
	Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
	Receiver Sensitivity[3]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum

Technical Specifications - Networking and Communications

<table>
<tr><td rowspan="13"></td><td></td><td colspan="2">802.11n, MCS07 : –69dBm maximum
802.11n, MCS15 : –66dBm maximum
802.11ac, 1SS, MCS-0 : –86dBm maximum
802.11ac, 1SS, MCS-9 : –61dBm maximum
802.11ac, 2SS, MCS-0 : –83dBm maximum
802.11ac, 2SS, MCS-9 : –58dBm maximum</td></tr>
<tr><td>Antenna type</td><td colspan="2">High efficiency antenna with spatial diversity, mounted in the display enclosure
Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications</td></tr>
<tr><td>Form Factor</td><td colspan="2">PCI-Express M.2 MiniCard</td></tr>
<tr><td>Dimensions</td><td colspan="2">Type 2230 : 2.3 x 22.0 x 30.0 mm
Or
Type 1630 : 2.3 x 16.0 x 30.0 mm</td></tr>
<tr><td>Weight</td><td colspan="2">Type 2230 : 2.8g
Or
Type 1630 : 2g</td></tr>
<tr><td>Operating Voltage</td><td colspan="2">3.3v +/- 9%</td></tr>
<tr><td>Temperature</td><td>Operating
Non-operating</td><td>14° to 158° F (−10° to 70° C)
−40° to 176° F (−40° to 80° C)</td></tr>
<tr><td>Humidity</td><td>Operating
Non-operating</td><td>10% to 90% (non-condensing)
5% to 95% (non-condensing)</td></tr>
<tr><td>Altitude</td><td>Operating
Non-operating</td><td>0 to 10,000 ft (3,048 m)
0 to 50,000 ft (15,240 m)</td></tr>
<tr><td>LED Activity</td><td colspan="2">LED Amber – Radio OFF; LED White – Radio ON</td></tr>
<tr><td colspan="3">1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).</td></tr>
</table>

<table>
<tr><td rowspan="15"></td><td colspan="2">HP Integrated Module with Bluetooth® 4.0+EDR Wireless Technology</td></tr>
<tr><td>Bluetooth Specification</td><td colspan="3">4.0+EDR Compliant</td></tr>
<tr><td>Frequency Band</td><td colspan="3">2402 to 2480 MHz</td></tr>
<tr><td>Number of Available Channels</td><td colspan="3">79 (1 MHz) available channels</td></tr>
<tr><td rowspan="3">Data Rates and Throughput</td><td colspan="3">3 Mbps data rate; throughput up to 2.17 Mbps</td></tr>
<tr><td colspan="3">Synchronous Connection Oriented links up to 3, 64 kbps, voice channels</td></tr>
<tr><td colspan="3">Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric</td></tr>
<tr><td>Transmit Power</td><td colspan="3">The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR.</td></tr>
<tr><td rowspan="4">Receiver Sensitivity</td><td>Modulation</td><td>0.01% BER</td><td>0.001% BER</td></tr>
<tr><td>GFSK</td><td>-80 dBm</td><td>-70 dBm</td></tr>
<tr><td>π/4-DQPSK</td><td>-80 dBm</td><td>-70 dBm</td></tr>
<tr><td>8DPSK</td><td>-80 dBm</td><td>-70 dBm</td></tr>
<tr><td>Power Consumption</td><td colspan="3">Peak (Tx) 330 mW
Peak (Rx) 230 mW
Selective Suspend 17 mW</td></tr>
<tr><td>Range</td><td colspan="3">Up to 33 ft (10 m)</td></tr>
<tr><td>Electrical Interface</td><td colspan="3">USB 2.0 compliant</td></tr>
<tr><td>Bluetooth Software Supported Link Topology</td><td colspan="3">Microsoft Windows Bluetooth Software</td></tr>
<tr><td>Electrical Interface</td><td colspan="3">Point to Point, Multipoint Pico Nets up to 7 slaves</td></tr>
</table>

Technical Specifications - Networking and Communications

	Bluetooth Software Supported Security	Full support of Bluetooth Security Provisions
	Power Management	Microsoft Windows ACPI, and USB Bus Support
	Power Management Certifications	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
	Security	All necessary regulatory approvals for supported countries, including:
	Certifications Bluetooth Profiles Supported	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
	Power Management Certifications	ETS 300 328, ETS 300 826
		Low Voltage Directive IEC950
	Certifications Bluetooth Profiles Supported	UL, CSA, and CE Mark
		Serial Port Profile (SPP)[1]
		Service Discovery Application Profile (SDAP)
		Dial-Up Networking (DUN)[1,2]
		Generic Object Exchange Profile (GOEP)[1,2]
		Object Push Profile (OPP)[1,2]
		File Transfer Profile (FTP)
		Synchronization Profile (SYNC)
		Hard Copy Cable Replacement (HCRP)[1,2]
		Personal Area Networking Profile (PAN)[1,2]
		Human Interface Device Profile (HID)[1,2]
		FAX Profile (FAX)
		Basic Imaging Profile (BIP)[2]
		Headset Profile (HSP)
		Hands Free Profile (HFP)
		Advanced Audio Distribution Profile (A2DP)

*Wireless access point and internet access required. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.

Broadcom BCM943228Z 802.11n 2x2 DualBand Combo PCIe x1 Card*

	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
	Interoperability	Wi-Fi certified
	Frequency Band	802.11b/g/n • 2.402 – 2.482 GHz Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
		802.11a/n • 4.9 - 4.95 GHz (Japan) • 5.15 - 5.25 GHz • 5.25 - 5.35 GHz • 5.47 - 5.725 GHz 5.825 - 5.850 GHz Note: Indonesia no support this band)
	Antenna Structure	2 transmit; 2 receive (2x2)

Technical Specifications - Networking and Communications

	Data Rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
	Modulation	Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM
	Security[1]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between band Access Points
	Output Power[2]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
	Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
	Receiver Sensitivity[4]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum
	Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO and Bluetooth communications
	Form Factor	PCI-Express M.2 MiniCard
	Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm
	Weight	Type 2230 : 2.8g Or

Technical Specifications - Networking and Communications

		Type 1630 : 2g	
Operating Voltage		3.3v +/- 9%	
Temperature	Operating	14° to 158° F (-10° to 70° C)	
	Non-operating	-40° to 176° F (-40° to 80° C)	
Humidity	Operating	10% to 90% (non-condensing)	
	Non-operating	5% to 95% (non-condensing)	
Altitude	Operating	0 to 10,000 ft (3,048 m)	
	Non-operating	0 to 50,000 ft (15,240 m)	
LED Activity		LED Amber - Radio OFF; LED White - Radio ON	

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode and on battery power.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology	
Bluetooth Specification	4.0+EDR Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	79 (1 MHz) available channels
Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps
	Synchronous Connection Oriented links up to 3, 64 kbps, voice channels
	Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR.
Receiver Sensitivity	*(see table below)*
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Range	Up to 33 ft (10 m)
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Electrical Interface Bluetooth Software Supported Security	Point to Point, Multipoint Pico Nets up to 7 slaves
	Full support of Bluetooth Security Provisions
Power Management Power Management Certifications	Microsoft Windows ACPI, and USB Bus Support
	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Security	All necessary regulatory approvals for supported countries, including:
Certifications Bluetooth Profiles Supported	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826
	Low Voltage Directive IEC950
Certifications	UL, CSA, and CE Mark

Receiver Sensitivity:

Modulation	0.01% BER	0.001% BER
GFSK	-80 dBm	-70 dBm
π/4-DQPSK	-80 dBm	-70 dBm
8DPSK	-80 dBm	-70 dBm

Not all configuration components are available in all regions/countries.
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Technical Specifications - Networking and Communications

	Bluetooth Profiles Supported	Serial Port Profile (SPP)[1] Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN)[1,2] Generic Object Exchange Profile (GOEP)[1,2] Object Push Profile (OPP)[1,2] File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP)[1,2] Personal Area Networking Profile (PAN)[1,2] Human Interface Device Profile (HID)[1,2] FAX Profile (FAX) Basic Imaging Profile (BIP)[2] Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
*Wireless access point and internet access required. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.		

Not all configuration components are available in all regions/countries.

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Technical Specifications - Audio

AUDIO

High Definition Audio

Type	Integrated
HD Stereo Codec	Realtek 2-channel ALC221 codec
Audio I/O Ports	Front microphone-In (150-K ohm Input Impedance)
	Rear Line-In/Microphone input (150-K ohm Input Impedance, function is configurable by audio driver)
	Front Headphone-Out (0.5 Ohm Output Impedance, expects at least a 32 ohm load) Front Microphone/Headphone jack is re-task able to provide Microphone input, line-in or Headphone output to support connecting two headphones to the front of the system. When configured as a second front headphone output, both front headphone outputs are always driven with the same signal.
	All ports are 3.5 mm
Internal Speaker Amplifier	1.5W amplifier for the internal speaker only. External speakers must be powered externally. Rear Line-in audio port is re-taskable as either Line-in or Microphone-In.
Multi-streaming Capable	Multi-streaming can be enabled in the Realtek control panel to allow independent audio streams to be sent to/from the front and rear jacks.
Sampling	8 kHz - 192 kHz
Wavetable Syntheses	Yes - Uses OS soft wavetable
Analog Audio	Yes
# of Channels on Line-Out	Stereo (Left & Right channels)
Internal Speaker	Yes
External Speaker Jack	Yes

Technical Specifications – Input/Output Devices

Input/Output Devices

HP Conferencing Keyboard
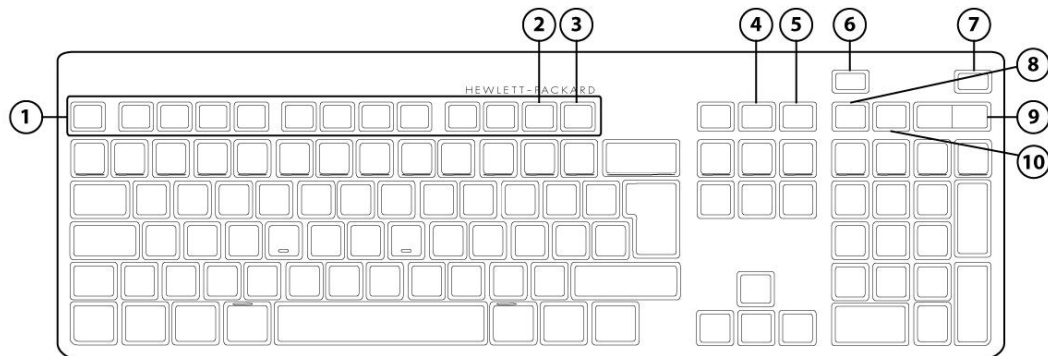
1.	Function Keys	**6.**	End/Decline a Call
2.	F11 Lync or Skype for Business Contact list *	**7.**	Answer a Call
3.	F12 Lync or Skype for Business Calendar **	**8.**	Microphone Mute
4.	Share Screen	**9.**	Volume Up/Down
5.	Stop Webcam	**10.**	Audio Mute

*Microsoft Lync 2013, or Skype for Business, or Microsoft Outlook 2013 Contact list

**Microsoft Lync 2013, or Skype for Business, or Microsoft Outlook 2013 Calendar

Dimensions (H x L x W)	0.85 x 17.34 x 6.10 in (2.16 x 44.05 x 15.50 cm)
Weight	24.69 oz. (700 g)
Connectivity	USB cable
Keys	110 (US) Layout, 111 (EU) Layout – depending upon country
Feature Summary	Full-size ultra-quiet keyboard with numerical pad and 12 function keys One-touch simplicity for Microsoft Lync or Skype for Business calls with dedicated keys and LED light indicators
Illuminated keys	Incoming Call – Blinks Green Call in progress –Green Microphone Mute – Orange Audio Mute – Orange Screen Sharing – Orange

Not all configuration components are available in all regions/countries.

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QuickSpecs

HP Elite 705 G2 Business Desktop Business PCs

Technical Specifications – Input/Output Devices

	Stop Webcam – Orange
Other Call control keys	End/Decline Call Volume up and down rocker key
Microsoft Lync/Outlook	Fn+F12 – Lync or Skype for Business Calendar will open. If Lync or Skype for Business is not available will bring Outlook Calendar * Fn+F11 – Lync or Skype for Business Contact will open. If Lync or Skype for Business is not available will bring Outlook Contact list * * Fn+11 and Fn+12 function keys are not supported in Microsoft Windows 8.x Metro mode
Functions Keys	Fn+F10 – System Settings Fn+F9 – Devices Fn+F8 – Search Fn+F7 – Blank Fn+F6 – Up Brightness Adjustment Fn+F5 – Down Brightness Adjustment Fn+F4 – Display Options Fn+F3 – File Explorer Fn+F2 – System Lock Fn+F1 – System Sleep
System requirements	Available USB port Windows 7, Windows 8.x, and Windows 10 Server: Microsoft Lync Server 2010 or 2013 and Skype for Business Server 2015 Client: Microsoft Lync 2013 version 15.0.46xx or newer or Skype for Business Notes: - Limited support for Microsoft Lync 2010, Microsoft Lync 2013 Basic and Microsoft Metro Mode - Screen brightness functions supported in select HP systems
Approvals **EMC** **Product Safety**	FCC; CE; ACA(C-tick); EAC UL, CE Mark

HP PS/2 Business Slim Keyboard

Physical Characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight	1.32 lb (600± 80 g)
Electrical	Operating voltage	+ 4.4 – 5.25VDC
	Power consumption	50-mA maximum (with 5 VDC power supplied and three LEDs ON)

Not all configuration components are available in all regions/countries.
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Technical Specifications – Input/Output Devices

	System interface	PS/2 6-pin mini din connector
	ESD	Contact Discharge: 2, 4,6,8KV Air Discharge: 2, 4, 8,10,12.5KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC 99 - 2001	Functionally compliant
	Keycaps	Low-profile design
	Switch actuation	60±12.5g nominal peak force with tactile feedback
	Switch life	10 million keystrokes (Life tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
Environmental	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	N/A
	Non-operating shock	65 inch 2.9 ms, six surface; 30g 266 inch/second; 50g 266 inch/second six surface
	Operating vibration	2-g peak acceleration
	Non-operating vibration	Starting at 5 Hz, vary the frequency of vibration from 5 to 500 Hz and back to 5 Hz at a Logarithmic sweep rate of 1 octave per minute.
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	29.93 in (76 cm) on concrete, 16-drop sequence

Technical Specifications – Input/Output Devices

Approvals	UL, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS

HP USB Business Slim Keyboard

Physical characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight	1.32 lb (0.6± 0.08 kg)
Electrical	Operating voltage	+ 4.4 – 5.25VDC
	Power consumption	50-mA maximum (with 5 VDC power supplied and three LEDs ON)
	System interface	USB Type A plug connector
	ESD	Contact Discharge: 2, 4,6,8KV Air Discharge: 2, 4, 8,10,12.5KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC 99 - 2001	Functionally compliant
Mechanical	Keycaps	Low-profile design
	Switch actuation	60±12.5g nominal peak force with tactile feedback
	Switch life	10 million keystrokes (Life tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
Environmental	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)

Not all configuration components are available in all regions/countries.
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Technical Specifications – Input/Output Devices

	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	30 in (76.2 cm) on concrete, 16-drop sequence
Approvals	UL, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	
Kit contents	Keyboard	Installation Guide
	Warranty Card	Safety and Comfort Guide

HP Wireless Business Slim Keyboard and Mouse

Keyboard	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight – Without Two AA Alkaline Batteries	1.23 lb (560± 80 g)
Mouse	Dimensions (H x L x W)	1.46 x 4.53 x 2.47 in (37 x 115 x 62.9 mm)
	Weight – Without Two AA Alkaline Batteries	0.15 lb (67 g)
Receiver	Dimensions (H x L x W)	0.33x 1.79 x 0.72 in (8.4 x 45.5 x 18.4 mm)
	Weight	0.21 oz (5.9 g)
	Cable Length – Minimum	6 ft (1.8 m)
	Range	32.8 ft (10 m)

Technical Specifications – Input/Output Devices

System Requirements	Available USB port for the receiver	
	CD-ROM Drive	
	*This system may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See http://www.microsoft.com/windows/windows-7/ for details.	
Approvals	Product Safety	UL; CSA /TUV (Europe only); CE Mark; CB Report
	Ergonomics	ANSI; ISO (Europe only); GS Mark (Germany only)
	EMC	FCC; CE; ACA (-tick); BSMI; KC ; VCCI
	CE Mark	EN 55022:2010; EN 55024; EN 301489-1; EN 61000
	Design Guidelines for PCs	PC 99 – connector overmold colors; PC 2001 – full functionality
	Telecom	All local telecom requirements and approvals for intended markets
	USA	FCC Title 47 CFR, Par 15, Subpart C; other local requirements
	Country Support	US, Belgium, Switzerland, Spain, Denmark, Netherlands, France, Germany, Italy, Portugal, Sweden, Norway, Finland, UK, Poland, Czech Republic, Turkey, Greece, Austria, Bulgaria, Cyprus, Estonia, Hungary, Ireland, Latvia, Lithuania, Luxemburg, Malta, Romania, Slovakia, Slovenia, Vietnam, HK, Australia, NZ, Malaysia, Singapore, Indonesia, Philippines, Thailand, Canada, China, Japan, Korea, Taiwan, India, Venezuela, Ecuador, Russia, Ukraine, Israel, Croatia, United Arab Emirates, Peru, Brazil, Chile, Argentina, Mexico, South Africa, and up to 193 countries worldwide.
Environmental	Keyboard contains 25% post-consumer recycled plastic material.	

HP PS/2 Keyboard

Physical Characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	18.12 x 6.47 x 0.96 in (46.03 x 16.43 x 2.44 cm)
	Weight	2 lb (0.9 kg) minimum
Electrical	Operating voltage	+ 5VDC ± 5%
	Power consumption	50-mA maximum (with three LEDs ON)
	System interface	PS/2 6-pin mini din connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC 99 - 2001	Functionally compliant

Not all configuration components are available in all regions/countries.

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Technical Specifications – Input/Output Devices

Mechanical	Keycaps	Low-profile design
	Switch actuation	55-g nominal peak force with tactile feedback
	Switch life	20 million keystrokes (using Hasco modified tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
Environmental	Acoustics	50-dBA maximum sound pressure level
	Operating temperature	32° to 104° F (0° to 40° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	15% to 80% (non-condensing at ambient)
	Non-operating humidity	15% to 90% (non-condensing at ambient)
	Operating shock	N/A
	Non-operating shock	65 inch 2.9 ms, six surface; 30g 266 inch/second; 50g 266 inch/second six surface
	Operating vibration	2-g peak acceleration
	Non-operating vibration	Starting at 5 Hz, vary the frequency of vibration from 5 to 500 Hz and back to 5 Hz at a Logarithmic sweep rate of 1 octave per minute.
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	29.93 in (76 cm) on concrete, 16-drop sequence
Approvals	CUL, ICES-003 Class B, FCC, CE Mark,TUV GS, VCCI, BSMI, C-Tick, KC	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	

HP USB Smart Card (CCID) Keyboard

Introduction:

Boost your security, simplify access procedures and reduce the costs associated with managing networks by preventing unauthorized access to your computers and networks using smartcard technology with the HP Smart Card (CCID) Keyboard.

The USB Smart Card (CCID) Keyboard is a full-sized keyboard that takes advantage of digital signatures and certificates to secure the environment for transactions performed on both public and private networks. The USB Smart Card (CCID) Keyboard works with all smart cards that comply with ISO standard 7816.

Smart cards are easy-to-use credit card-sized devices which require multiple forms of information to be validated before you gain access to your accounts or resources. Used worldwide, smart cards strengthen access to a network or other resource using dual-factor authentication. Implementing a two-factor authentication (or multi-factor authentication) process reduces the risk of unauthorized access by verifying and validating your identity in one of the following ways:

- Something you know – a combination of username and password or PIN

Technical Specifications – Input/Output Devices

• Something you have – a smart card or security token. Something you have (smart card) plus something you know (PIN), improves user-access security within corporate network environments. Smart cards are used in government agencies, healthcare companies and the finance industry. HP ProtectTools Smart Card Manager provides authentication software for the smart card. The Smart Card Reader module works with the HP ProtectTools Security Manager and enables the user to setup, use, and manage the smart card. This allows strengthened security with HP patented technology.	

Key Benefits:	• Protects against unauthorized access with smart card technology • Delivers even greater security when combined with a HP ProtectTools smart card and the HP ProtectTools Security Software • Combination of username and password or pin with a smart card or security token • Secures online transactions using digital signatures and certificates • Conforms to industry standards for ease of setup and use • Delivers long product life and quiet operation with high-impact materials and lubricated keys • Spill drain feature

Physical Characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country
	Form factor	USB basic smart card keyboard
	Colors	Carbonite/Silver
	Dimensions (H x W x D)	18.2 x 6.3 x 1.3 in (46.3 x 16.1 x 3.3 cm)
	Weight	2 lb (0.9 kg) minimum

Electrical	Operating voltage	+ 5VDC ± 5%
	Power consumption	100-mA maximum (with four LEDs ON)
	System interface	USB Type A plug connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC 99 - 2001	Functionally compliant

Mechanical	Languages	30+ available
	Keycaps	Standard design
	Switch actuation	55 g nominal peak force with tactile feedback
	Switch life	20 million keystrokes (using Hasco modified tester)
	Switch type	Contamination-resistant membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
	Acoustics	43-dBA maximum sound pressure level

Environmental	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration

Not all configuration components are available in all regions/countries.

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Technical Specifications – Input/Output Devices

	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence	
	Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence	
SmartCard Function	Support	All ISO 7816 smart cards	
	Interface	Reads from and writes to all ISO7816-1, 2, 3, 4 memory and microprocessor smart cards (T=0, T=1)	
	Chipset	SCM STCIII	
	Standard APIs supported	PC/SC, EMV2000, CT-API	
	Power	USB Port	
		Short circuit detection (protects smart card and reader)	
		Power supply compliant with ISO7816 and EMV (5V, 60 mA)	
		Supports 3-V and 5-V cards	
	Power consumption	100-mA maximum draw	
	Communication	From card	9600 bps to 330,000 bps
		From computer	12 Mbps (USB transfer speed)
	Landing mechanism	Contact device	Friction contact
		Card insertions rating	Up to 100,000 insertion cycles
	Interface modes	CCID protocol	
	Reader performance interface	USB connection	
	Electro-magnetic standards	Europe	2004/108/EC
		USA	USAFCC part 15
Approvals	CE-Mark, UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC, EMV2000, USB-IF		
Ergonomic Compliance	ISO 9241-4, TUVGS		
Kit Contents	Keyboard, I/O Security and Documentation CD, warranty card		

HP USB PS/2 Washable Keyboard		
Physical Characteristics	Keys	104 (US) Layout, 105 (EU) layout - depending upon country
	Dimensions (L x W x H)	17.67x 6.62 x 1.38 in (449 x 168 x 35 mm)
	Weight	1.7 lb (0.77 kg) minimum
Electrical	Operating voltage	+ 5VDC ±5%
	Power consumption	50-mA maximum (with three LEDs ON)
	System interface	USB Type A plug connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC 99 - 2001	Functionally compliant
Mechanical	Keycaps	Stepped -profile design
	Switch actuation	55-g nominal peak force with tactile feedback
	Switch life	20 million keystrokes
	Switch type	Contamination-resistant switch membrane

Not all configuration components are available in all regions/countries.
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Technical Specifications – Input/Output Devices

	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	7 ft (2.2 m)
	Microsoft PC 99 - 2001	Mechanically compliant
	Acoustics	43-dBA maximum sound pressure level
Environmental	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	4° to 149° F (-20° to 65° C)
	Operating humidity	10% to 95% (non-condensing at ambient)
	Non-operating humidity	0% to 95% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence
Approvals	UL, cUL, FCC, CE, TUV GS, VCCI, BSMI, C-Tick, KCC, USB-IF, WHQL, EN/IEC 60601-1, IP66/NEMA4X	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	

HP PS/2 Mouse

Dimensions (H x L x W)	1.46 x 2.48 x 4.53 in (3.70 x 6.29 x 11.50 cm)	
Weight	3.53 oz (100g; +10g/- 5 g)	
Environmental	Operating temperature	-32° to 104°F (0° to 40° C)
	Non-operating temperature	-4° to 140°F (-20° to 60° C)
	Operating humidity	10% to 90% (non condensing at ambient)
	Non-operating humidity	10% to 90% (non condensing at ambient)
	Operating shock	40 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2 g peak acceleration
	Non-operating vibration	4 g peak acceleration
	Drop (out of box)	80 cm height onto asphalt tile over concrete or equivalent, 5-drop in 5 direction except the cable face
Electrical	Operating voltage	5 VDC ± 10%
	Power consumption	100mA

Technical Specifications – Input/Output Devices

	System consumption	PS/2 mini-din connector
	ESD	CE level 4, 15 kV air discharge
	EMI-RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC99 - 2001	Functionally compliant
Mechanical	Resolution	800 DPI
	Tracking speed	10 in/s (25.4 cm/s) maximum
	Acceleration	±15%
	Switch actuation	65±20 gf
	Switch life	3,000,000 operations (using Hasco modified tester)
	Switch type	Low force micro-switches
	Tracking mechanism life	80 km
	Cable length	6 ft (1.8 m)
	Microsoft PC99 - 2001	Mechanically compliant
Scroll wheel	Width	6 mm
	Diameter	22.5 ± 0.2 mm
	Maximum rotation force	50 gf-cm
	Switch type	Light force micro-switch
	Switch life	1 million operations
	Mechanical life	Minimum 200,000 revolutions
Regulatory Approvals	UL/cUL, FCC, CE Mark, TUV/GS, VCCI, KCC, BSMI, C-Tick	

HP USB 1000dpi Laser Mouse

Dimensions (H x L x W)	1.47 x 4.53 x 2.47 in (37.3 x 114.97 x 62.86 mm)	
Weight	3.360 oz (102g)	
Cable length	70.9 in (180 cm)	
System requirements	Available USB port	
Environmental	Operating Temperature	32° to 104° F (0° to 40° C)
	Non-operating Temperature	-4° to 140° F (-20° to 60° C)
	Operating Humidity	10% to 90% (non-condensing at ambient)
Mechanical	Resolution	1000dpi
	Tracking Speed	45 cm/sec
	Cable Length	70.9 in (180 cm)

HP USB PS/2 Washable Mouse

Dimensions (H x L x W)	1.56 x 2.44 x 4.61 in (3.95 x 6.21 x 11.7 cm)
Weight	4.44 oz (126 g)

Technical Specifications – Input/Output Devices

Environmental	Operating temperature	–32° to 104°F (0° to 40° C)
	Non-operating temperature	–4° to 140°F (–20° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	10% to 90% (non condensing at ambient)
	Operating shock	40 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2 g peak acceleration
	Non-operating vibration	4 g peak acceleration
	Drop (out of box)	80 cm height onto asphalt tile over concrete or equivalent, 5-drop in 5 direction except the cable face
Electrical	Operating voltage	5 VDC ± 10%
	Power consumption	100mA
	System consumption	PS/2 mini-din connector
	ESD	CE level 4, 15 kV air discharge
	EMI-RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC99 – 2001	Functionally compliant
Mechanical	Resolution	400 ± 20% DPI
	Tracking speed	10 in/s (25.4 cm/s) maximum
	Acceleration	100 in/s/s (2.54 m/s/s)
	Switch actuation	61 g nominal peak force
	Switch life	3,000,000 operations (using Hasco modified tester)
	Switch type	Low force micro-switches
	Tracking mechanism life	155 mi (250 km) at average speed of 10 in/s
	Cable length	6 ft (1.8 m)
	Microsoft PC99 – 2001	Mechanically compliant
Scroll wheel	Width	8 mm
	Diameter	1.01 in (25.6 mm)
	Maximum rotation speed	48 rats/sec
	Switch type	Light force micro-switch
	Switch life	1 million operations
	Mechanical life	Minimum 200,000 revolutions
Regulatory approvals	Compliant	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC

Not all configuration components are available in all regions/countries.

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Technical Specifications – Power

UNIT ENVIRONMENT AND OPERATING CONDITIONS

General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

Temperature Range	Operating: 50° to 95° F (10° to 35° C)* Non-operating: -22° to 140° F(-30° to 60° C)
Relative Humidity	Operating: 10% to 90% (non-condensing at ambient) Non-operating: 5% to 95% (non-condensing at ambient)
Maximum Altitude (unpressurized)	Operating: 5000m Non-operating: 50000ft (15240 m)

*Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

Power Supply

	SFF	MT	DM
Standard Efficiency	200W active PFC 70% efficient	280W active PFC 70% efficient	65W active PFC 89% average efficiency 90W active PFC 89% average efficiency
80 PLUS Bronze	200W active PFC 82/85/82% efficient at 20/50/100% load (115V) 82/85/82% efficient at 20/50/100% load (230V)	280W active PFC 82/85/82% efficient at 20/50/100% load (115V) 82/85/82% efficient at 20/50/100% load (230V)	
80 PLUS Gold	N/A	N/A	
80 PLUS Platinum	200W active PFC 90/92/89% efficient at 20/50/100% load (115V) 91/93/90 % efficient at 20/50/100% load (230V)	280W active PFC 90/92/89% efficient at 20/50/100% load (115V) 91/93/90% efficient at 20/50/100% load (230V)	
Operating Voltage Range	90 - 264 VAC	90 - 264 VAC	
Rated Voltage Range	100 - 240 VAC	100 - 240 VAC	
Rated Line Frequency	50/60 Hz	50/60 Hz	

Not all configuration components are available in all regions/countries.
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Technical Specifications – Power

Operating Line Frequency	47 – 63 Hz	47 – 63 Hz	
Rated Input Current	3.5A	4.4A	
Rated Input Current with Energy Efficient* Power Supply	3A	3.6A	65W/1.7A 90W/1.4A
DC Output	N/A	N/A	
Current Leakage (NFPA 99)	Less than 500 micro amps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 micro amps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.	Less than 500 micro amps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 micro amps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.	Less than 500 micro amps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 micro amps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.
Power Supply Fan	70mm variable speed	80mm variable speed	
Power cord length	6.0 ft. (1.83 m)	6.0 ft. (1.83 m)	
External Power Adapter			
Total Cord Length	N/A	N/A	

Technical Specifications – Weights & Dimensions

Weights & Dimensions

Weights & Dimensions
(configured with 1 HDD & 1 ODD; DM configured with 1 HDD only)

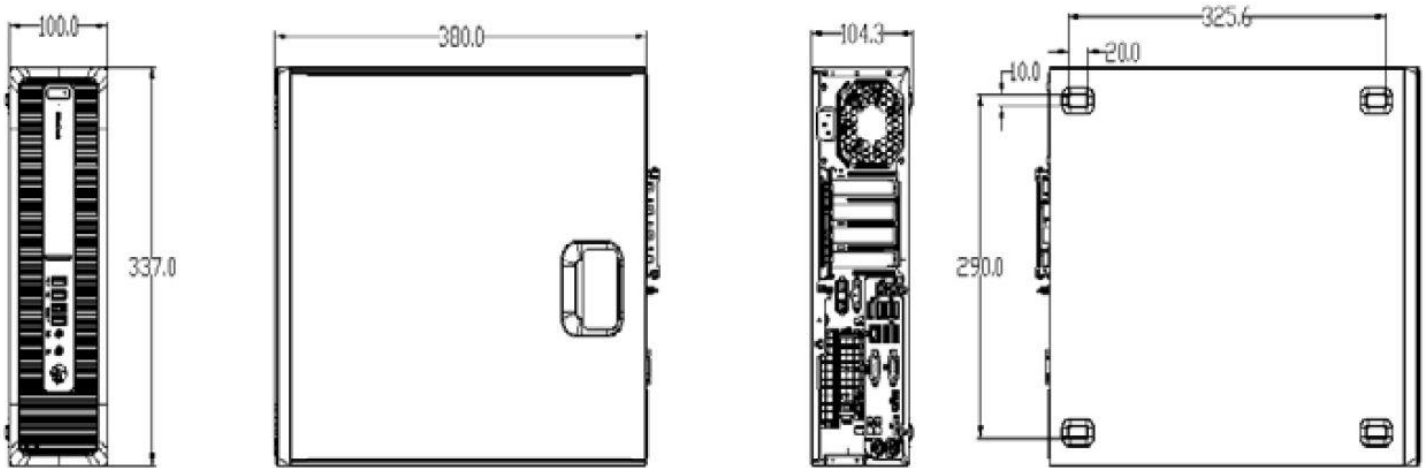|	**SFF**	**MT**	**DM**
Chassis (W x H x D)	13.3 x 3.95 x 14.9 in 338 x 100 x 380 mm	14.0 x 6.7 x 13.4 in 355 x 170 x 340 mm	6.9 x 1.3 x 7.0 in 175 x 34 x 177 mm
System Volume	782.7 cu in 12.8 L	1252 cu in 20.5 L	62.79 cu in 1.05 L
System Weight*	14.6 lb 6.6 kg	14.9 lb 6.76 kg	2.9 lb 1.3 kg
Max Supported Weight (desktop orientation)	77.0 lb 35.0 kg	N/A	77.0 lb 35.0 kg
Tower Stand (H x W x D)	1.1 x 7.0 x 7.9 in 29 x 178 x 200 mm	N/A	77x 4.6 x 6.3 in 19.5 x 117 x 160 mm
Packaging (H x W x D)	9.0 x 19.7 x 23.4 in 229 x 500 x 594 mm	11.7 x 20.3 x 18.8 in 299 x 517 x 478 mm	7.8 x 11.4 x 19.7 in 198 x 290 x 500 mm
Shipping Weight	17.9 lb 8.1 kg	20.6 lb 9.3 kg	9.0 lb. 4.1 kg
Palletization Profile	4-units per layer 10-layer max. 40-units per pallet	8-units per layer 4-layer max. 32-units per pallet	8-units per layer 10/12 layer max 80/96 per pallet 47.126 x 39.291 x 99.252 in (including pallet)
			Dependent on 40-Ft Stnd. Sea Container or 40-Ft High-cube Sea Container is used)

Not all configuration components are available in all regions/countries.

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Technical Specifications – Weights & Dimensions

SMALL FORM FACTOR DIMENSIONS

MICROTOWER DIMENSIONS
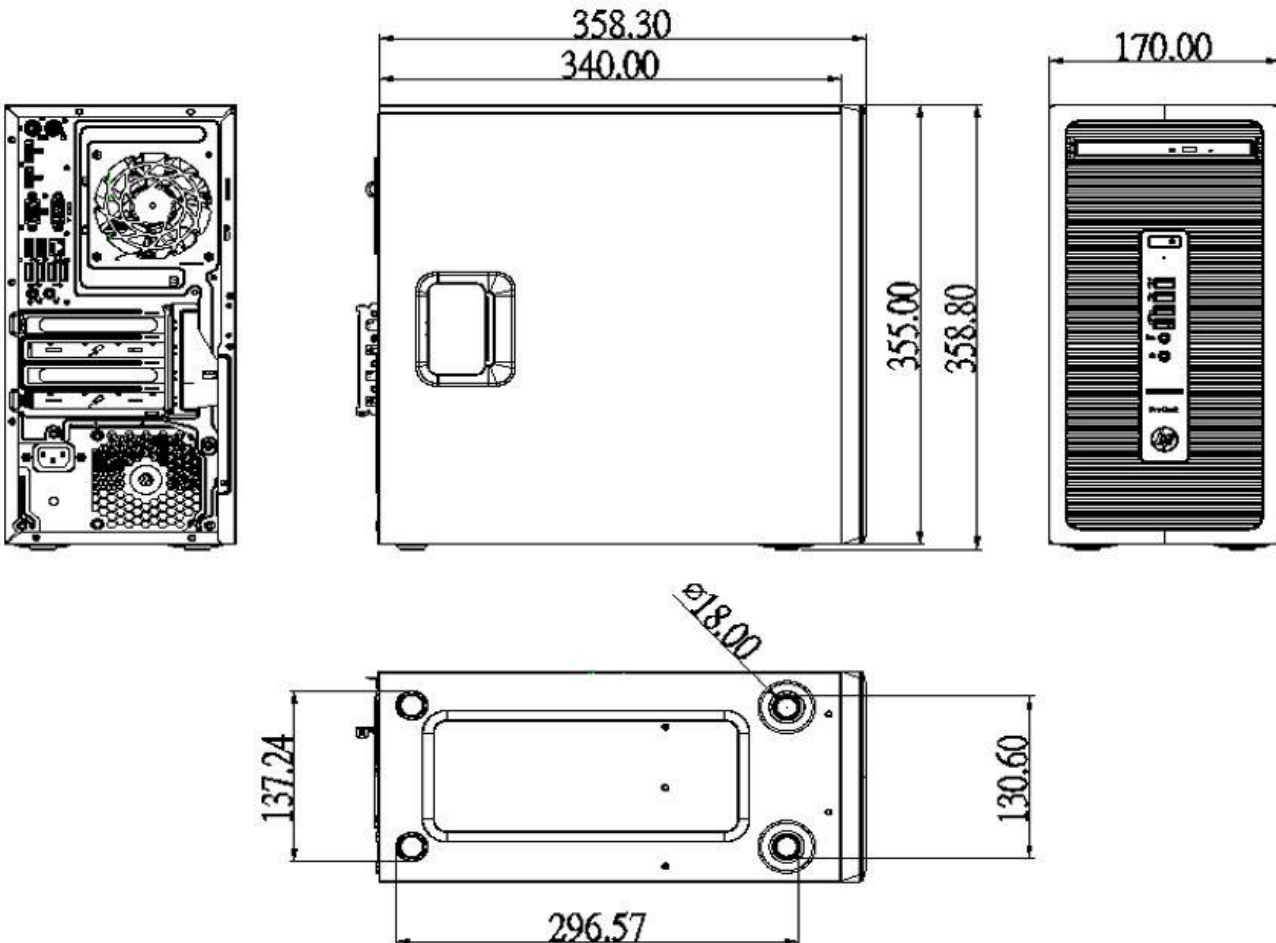
Technical Specifications – Weights & Dimensions

DESKTOP MINI DIMENSIONS

Not all configuration components are available in all regions/countries.

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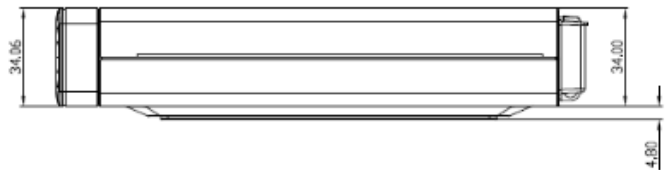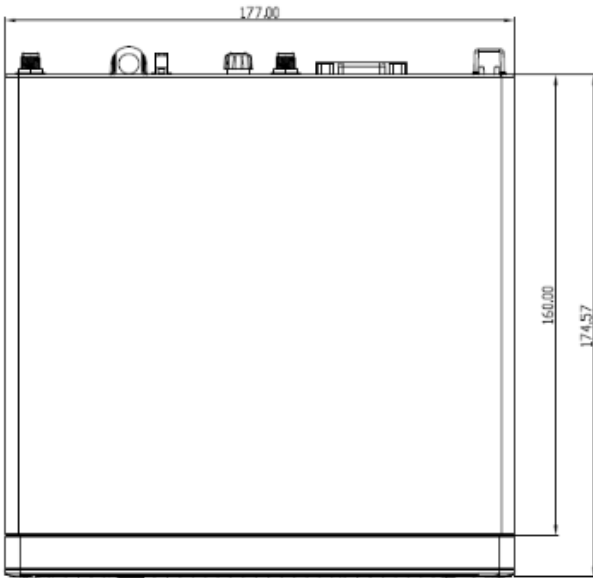
Environmental Data

Management Features

- Advanced Configuration and Power Management Interface (ACPI). Allows the system to wake from a low power mode. Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system.
- Dual State Power Button; acts as both an on/off button and a suspend-to-sleep button

Serviceability Features

- Dual colored power LED on front of computer to indicate either normal or fault condition
- Diagnostic LED Explanation Table:
  - Number of 1-second red LED blinks followed by a 2-second pause, then repeats:
    - 2 - processor thermal protection activated
    - 3 - processor not installed
    - 4 - power supply failure
    - 5 -- memory error
    - 6 - video error
    - 7 - PCA failure (ROM detected failure prior to video)
    - 8 - invalid ROM, boot block recovery mode
    - 9 - system not fetching code
    - 10 - system hang while loading an option ROM
- HP PC Hardware Diagnostics UEFI:
  - This utility enables hardware level testing outside the operating system on many components. The diagnostics can be invoked by pressing F2 at POST, and is available as a download from HP Support
- System/Emergency ROM
- Flash ROM
- CMOS Battery Holder for easy replacement
- Flash Recovery with Video Configuration Record Software
- 5 Aux Power LED on System PCA
- Processor ZIF Socket for easy Upgrade
- Over-Temp Warning on Screen (Requires IM Agents)
- Clear Password Jumper
- DIMM Connectors for easy Upgrade
- Clear CMOS Button
- NIC LEDs (integrated) (Green & Amber)
- Dual Color Power and HD LED - To Indicate Normal Operations and Fault Conditions
- Color coordinated cables and connectors
- Tool-less Hood Removal
- Front power switch
- System memory can be upgraded without removing the system board or any internal components
- Tool-less Hard Drive, CD & Diskette Removal
- Green Pull Tabs (SFF), and Quick Release Latches for easy Identification

Additional Features

	Description
Towerable Orientation	Product can be oriented as either a desktop (horizontal) or a tower (vertical)
SFF only Drive Lock	Implementation of the industry standard ATA Security feature set. When enabled, it prevents software access to user data on the drive until one or two user-defined passwords are provided.
Drive Protection System	DPS Access through F10 Setup during Boot
	A diagnostic hard drive self- test. It scans critical physical components and every sector of the hard drive for physical faults and then reports any faults to the user

Not all configuration components are available in all regions/countries.
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Technical Specifications – Environmental Data

	Running independently of the operating system, it can be accessed through a Windows-based diagnostics utility or through the computer's setup procedure. It produces an evaluation on whether the hard drive is the source of the problem and needs to be replaced
	The system expands on the Self-Monitoring, Analysis, and Reporting Technology (SMART), a continuously running systems diagnostic that alerts the user to certain types of failures
SMART Technology (Self-Monitoring, Analysis and Reporting Technology)	Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted
SMART I - Drive Failure Prediction	Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count
SMART II - Off-Line Data Collection	By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure
SMART III - Off-Line Read Scanning with Defect Reallocation	IOEDC: I/O Error Detection Circuitry
	Detects errors in Read/Write buffers on HDD cache RAM
SMART IV - End-to-End CRC for hard drives	Interface in F10 setup provides confirmation of SMART IV support.

Not all configuration components are available in all regions/countries.
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Technical Specifications – Environmental Data

HP EliteDesk 705 G2 Desktop Mini				
Environmental Data	**Eco-Label Certifications & declarations**	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country.		
	System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Ultra-slim Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
	Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation (Short idle)	13.96 W	14.09 W	13.95 W
	Normal Operation (Long idle)	12.57 W	12.58 W	12.53 W
	Sleep	1.15 W	1.14 W	1.19 W
	Off	0.75 W	0.76 W	0.77 W
		Note: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
	Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation (Short idle)	48 BTU/hr	48 BTU/hr	48 BTU/hr
	Normal Operation (Long idle)	43 BTU/hr	43 BTU/hr	43 BTU/hr
	Sleep	4 BTU/hr	4 BTU/hr	4 BTU/hr
	Off	3 BTU/hr	3 BTU/hr	3 BTU/hr
		*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.		
	Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WAd}, bels)		Sound Pressure (L_{pAm}, decibels)
	Typically Configured – Idle	2.8		18
	Fixed Disk – Random writes	2.9		18
	Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:		

Technical Specifications – Environmental Data

	6 USB ports 2 memory slots 2 M.2 PCIe slots 1 internal 2.5" bay supporting a 2.5" hard drives (HDD/SSD/SED/SSHD) Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.		

Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC
	
	Batteries used in the product do not contain:
	    Mercury greater the1ppm by weight
	    Cadmium greater than 20ppm by weight
	
	Battery size: CR2032 (coin cell)
	Battery type: Lithium		

Additional Information	- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. - This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. - This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). - This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net - Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. - This product contains 0% post-consumer recycled plastic (by wt.) - This product is 94.9% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	530 g
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	41 g
		PLASTIC/Polyethylene low density	7 g
	The EPE foam packaging material is made from 0% recycled content.		
	The corrugated paper packaging materials contains at least 0% recycled content.		
Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): - Asbestos - Certain Azo Colorants - Certain Brominated Flame Retardants – may not be used as flame retardants in plastics - Cadmium - Chlorinated Hydrocarbons - Chlorinated Paraffins - Formaldehyde - Halogenated Diphenyl Methanes - Lead carbonates and sulfates - Lead and Lead compounds - Mercuric Oxide Batteries		

Not all configuration components are available in all regions/countries.
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		• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
	Packaging Usage	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

	Hewlett-Packard Corporate Environmental Information	For more information about HP's commitment to the environment:
		
		Global Citizenship Report
		    http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html
		Eco-label certifications
		    http://www8.hp.com/us/en/hp-information/environment/ecolabels.html
		ISO 14001 certificates:
		    http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf
		    and
		    http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

Technical Specifications – Environmental Data

HP EliteDesk 705 Microtower				
Environmental Data	**Eco-Label Certifications & declarations**	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country.		
	System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
	Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation (Short idle)	19.58 W	19.90 W	19.64 W
	Normal Operation (Long idle)	17.80 W	18.14 W	17.53 W
	Sleep	1.02 W	1.12 W	1.02 W
	Off	0.88 W	0.97 W	0.88 W
		Note: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
	Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation (Short idle)	67 BTU/hr	68 BTU/hr	67 BTU/hr
	Normal Operation (Long idle)	61 BTU/hr	62 BTU/hr	60 BTU/hr
	Sleep	3 BTU/hr	4 BTU/hr	3 BTU/hr
	Off	3 BTU/hr	3 BTU/hr	3 BTU/hr
		*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.		
	Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WAd}, bels)		Sound Pressure (L_{pAm}, decibels)
	Typically Configured – Idle	3.4		24
	Fixed Disk – Random writes	3.5		25
	Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:		

Not all configuration components are available in all regions/countries.

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Technical Specifications – Environmental Data

		10 USB ports 4 memory slots 1 PCIe 3.0, x16 slot 1 PCIe 3.0, x4 slot using x16 conector 2 PCIe 3.0, x1 slot 1 external bay supporting one slim ODD or removable drive 2 internal 3.5" bays supporting up to two 3.5" hard drives (HDD/SSD/SED/SSHD) 1external SD 3.0 Reader Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.	
Batteries		This battery(s) in this product comply with EU Directive 2006/66/EC Batteries used in the product do not contain: 　　Mercury greater the1ppm by weight 　　Cadmium greater than 20ppm by weight Battery size: CR2032 (coin cell) Battery type: Lithium	
Additional Information		- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. - This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. - This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). - This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net - Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. - This product contains 22.3% post-consumer recycled plastic (by wt.) - This product is 94.4% recycle-able when properly disposed of at end of life.	

Packaging Materials	**External:**	PAPER/Corrugated	1220 g
	Internal:	PLASTIC/EPE - Expanded Polyethylene	120 g
		PLASTIC/Polyethylene low density	56 g
		PLASTIC/Polypropylene	15 g
	The EPE foam packaging material is made from 9% recycled content.		
	The corrugated paper packaging materials contains at least 44.1% recycled content.		

Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): - Asbestos - Certain Azo Colorants - Certain Brominated Flame Retardants – may not be used as flame retardants in plastics - Cadmium - Chlorinated Hydrocarbons - Chlorinated Paraffins

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		• Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
	Packaging Usage	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Not all configuration components are available in all regions/countries.

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	Hewlett-Packard Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www8.hp.com/us/en/hp-information/environment/ecolabels.html ISO 14001 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

HP EliteDesk 705 Small Form Factor

Environmental Data	Eco-Label Certifications & declarations	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country.		
	System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
	Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation (Short idle)	20.16 W	20.37 W	20.17 W
	Normal Operation (Long idle)	18.73 W	18.50 W	18.57 W
	Sleep	1.08 W	1.13 W	1.08 W
	Off	0.92 W	0.97 W	0.92 W
		Note: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
	Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation (Short idle)	69 BTU/hr	70 BTU/hr	69 BTU/hr
	Normal Operation (Long idle)	64 BTU/hr	63 BTU/hr	64 BTU/hr
	Sleep	4 BTU/hr	4 BTU/hr	4 BTU/hr
	Off	3 BTU/hr	3 BTU/hr	3 BTU/hr

Technical Specifications – Environmental Data

		*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.	

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WAd}, bels)	Sound Pressure (L_{pAm}, decibels)
Typically Configured – Idle	3.1	21
Fixed Disk – Random writes	3.4	21

Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:
	• 10 USB ports • 4 memory slots • 1 PCIe 3.0, x16 slot • 1 PCIe 3.0, x4 slot using x16 conector • 2 PCIe 3.0, x1 slot • 1 external bay supporting one slim ODD or removable drive • 2 internal 3.5" bays supporting up to two 3.5" hard drives (HDD/SSD/SED/SSHD) • 1internal 2.5" bay supporting one 2.5" hard drive (HDD/SSD/SED/SSHD) • 1external SD 3.0 Reader Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.

Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC
	
	Batteries used in the product do not contain:
	    Mercury greater the1ppm by weight
	    Cadmium greater than 20ppm by weight
	
	Battery size: CR2032 (coin cell)
	Battery type: Lithium

Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. • This product contains 18% post-consumer recycled plastic (by wt.) • This product is 93.5% recycle-able when properly disposed of at end of life.

Packaging Materials	**External:**	PAPER/Corrugated	2300 g
	Internal:	PLASTIC/EPE - Expanded Polyethylene	110 g
		PLASTIC/Polyethylene low density	56 g

Not all configuration components are available in all regions/countries.   Page 90

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		PLASTIC/Polypropylene	15 g
		The EPE foam packaging material is made from 11.8% recycled content.	
		The corrugated paper packaging materials contains at least 44.1% recycled content.	
	Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants – may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)	
	Packaging Usage	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.	

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Technical Specifications – Environmental Data

	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

	Hewlett-Packard Corporate Environmental Information	For more information about HP's commitment to the environment:
		
		Global Citizenship Report
		    http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html
		Eco-label certifications
		    http://www8.hp.com/us/en/hp-information/environment/ecolabels.html
		 ISO 14001 certificates:
		    http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU _Product_Design_ISO_14K_Certificate.pdf
		    and
		    http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

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After-Market Options (availability may vary by region)

After Market Options

Business Monitors	SFF/MT	DM	Part Number
HP ProDisplay P17A 17-inch 5:4 LED Backlit Monitor	X	X	F4M97AA
HP ProDisplay P202 20-inch Monitor	X	X	K7X27AA
HP ProDisplay P222va 21.5-inch Monitor	X	X	K7X30AA
HP ProDisplay P232 23-inch Monitor	X	X	K7X31AA
HP EliteDisplay E190i 18.9-inch LED Backlit Monitor	X	X	E4U30AA
HP EliteDisplay E221c 21.5-inch Webcam LED Backlit Monitor	X	X	D9E49AA
HP EliteDisplay E222 21.5-inch Monitor	X	X	M1N96AA
HP EliteDisplay E232 23-inch Monitor	X	X	M1N98AA
HP EliteDisplay E240c 23.8-inch Video Conferencing Monitor	X	X	M1P00AA
HP EliteDisplay E242 24-inch Monitor	X	X	M1P02AA
HP EliteDisplay S140u 14-inch USB Portable Monitor	X	X	G8R65AA
HP EliteDisplay S230tm 23-inch Touch Monitor	X	X	E4S03AA
HP EliteDisplay S231d 23-in IPS LED BLU Notebook Docking Monitor	X	X	F3J72AA

Communication Devices	SFF/MT	DM	Part Number
Intel® Ethernet I210 - T1 Gbe NIC	X		E0X95AA
Intel® 7265 802.11ac 2x2 DualBand Combo PCIe x1 Card	X		N4G85AA
Broadcom BCM943228Z 802.11n 2x2 DualBand Combo PCIe x1 Card	X		N4M64AA

Graphics Solutions	SFF/MT	DM	Part Number
NVIDIA® GeForce® GT 730 2GB PCIe x8 Card	X		N3R90AA
NVIDIA GeForce GT 720 2GB PCIe x16 Card (China only)	MT Only		T4E57AA
NVIDIA Quadro NVS 310 1GB PCIe x16 Card	X		M6V51AA
AMD® Radeon™ R9 350 2GB DH PCIe x16 Card	MT Only		N3R91AA
Dual Output USB Graphics Adapter	X	X	C5U89AA
USB Graphics Adapter	X	X	NL571AA
HP UHD USB Graphics Adapter	X	X	N2U81AA
HP DisplayPort Cable Kit	X	X	VN567AA
HP DisplayPort To DVI-D Adapter	X	X	FH973AA
HP DisplayPort To VGA Adapter	X	X	AS615AA
HP DisplayPort To HDMI 4k Adapter	X	X	K2K92AA
HP DVI to DVI Cable	X	X	DC198A
HP (Bulk) 700mm DisplayPort Cable Kit		X	

Data Storage Drives	SFF/MT	DM	Part Number

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After-Market Options (availability may vary by region)

HP 500GB SATA 6.0Gb/s Hard Drive	X		QK554AA
HP 1TB 7200rpm SATA 6Gbps Hard Drive	X		QK555AA
HP 256GB SATA TLC Solid State Drive	X	X	P1N68AA
HP 128GB SATA Solid State Drive	X	X	QV063AA
HP 128Gb SED Opal 2 Solid State Drive Desktop	X	X	G1K24AA
Intel Pro 2500 180GB SATA SED Opal2 Solid State Drive	X	X	P3X90AA
HP 500GB SATA Solid State Hybrid Drive	X	X	E1C62AA
HP 128GB Turbo Drive SSD - PCIe card	X		J5V07AA
HP 256GB Turbo Drive SSD - PCIe card	X		N3S12AA
HP 256GB Turbo Drive G2 SSD – PCIe card	X		T7W25AA
HP 9.5mm Slim Removable SATA 500GB	X		T7G14AA
HP 256GB SATA Value Non-SED Solid State Drive	X	X	W0U55AA
HP 256GB SATA TLC Non-SED Solid State Drive	X	X	P1N68AA

Input Devices

	SFF/MT	DM	Part Number
HP Conferencing Keyboard	X	X	K8P74AA
HP USB Business Slim Keyboard	X	X	N3R87AA
HP PS/2 Business Slim Keyboard	X		N3R86AA
HP Wireless Business Slim Keyboard and Mouse**	X	X	QY449AA
HP USB Grey Keyboard (EMEA only)	X	X	B6B64AA
HP USB Smart Card (CCID) Keyboard	X	X	BV813AA
HP USB Keyboard and Mouse Kit	X	X	B1T09AA
HP USB Washable Keyboard**	X	X	VF097AA
HP USB PS/2 Washable Mouse**	X	X	BM866AA
HP USB PS/2 Washable Keyboard and Mouse Kit**	X	X	BU207AA
HP USB Grey Mouse (EMEA only)	X	X	K7W54AA
HP USB Antimicrobial Keyboard and Mouse (China Only)	X	X	K7X25AA
HP USB Hardened Mouse	X	X	P1N77AA
HP PS/2 Mouse	X		QY775AA
HP PS/2 Keyboard	X		DT527AA
HP USB Mouse	X	X	QY777AA
HP USB 1000dpi Laser Mouse	X	X	QY778AA
** Keyboard contains 25% post-consumer recycled plastic material			

Desktop Mini Accessories

	SFF/MT	DM	Part Number
HP Desktop Mini DVD DVD-Writer ODD Expansion Module		X	K9Q83AA
HP Desktop Mini 500GB HDD/ I/O Expansion Module		X	K9Q82AA
HP Desktop Mini Rack Mount Tray Kit		X	G1K21AA
HP Desktop Mini Security/Dual VESA Sleeve		X	G1K22AA

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After-Market Options (availability may vary by region)

HP Desktop Mini 65W Power Supply Kit		X	L2X04AA
HP Desktop Mini Vertical Chassis Stand		X	G1K23AA
HP Desktop Mini LockBox		X	P1N78AA
HP Desktop Mini Port Cover Kit		X	P3R65AA
HP Desktop Mini I/O Expansion Module		X	K9Q84AA
HP Integrated Work Center Desktop Mini/Thin Clients		X	G1V61AA
HP Single Monitor Arm		X	BT861AA
HP Quick Release Bracket		X	EM870AA

System Memory

	SFF/MT	DM	Part Number
HP 2GB DDR3L-1600 DIMM	X		N1M45AA
HP 4GB DDR3L-1600 DIMM	X		N1M46AA
HP 8GB DDR3L-1600 DIMM	X		N1M47AA
HP 2GB DDR3L-1600 SODIMM		X	P2N45AA
HP 4GB DDR3L-1600 SODIMM		X	P2N46AA
HP 8GB DDR3L-1600 SODIMM		X	P2N47AA

Multimedia Devices

	SFF/MT	DM	Part Number
HP 9.5mm Desktop G2 Slim DVD-ROM Drive	X		N1M41AA
HP 9.5mm Desktop G2 Slim DVD Writer Drive	X		N1M42AA
HP 9.5mm Desktop G2 Slim SATA BDXL Blu-Ray Writer	X		N1M43AA
HP USB HD 720P v2 Business Webcam	X	X	D8Z08AA
HP Business Headset v2	X	X	T4E61AA
HP USB Business Speakers v2	X	X	N3R89AA

Security Devices

	SFF/MT	DM	Part Number
HP 2014 Solenoid Lock and Hood Sensor (SFF only)	SFF only		J6L43AA
HP 2014 Solenoid Lock and Hood Sensor (MT only)	MT only		J6L42AA
HP SFF Wall Mount/Security Sleeve	SFF only		VN570AA
HP UltraSlim Cable Lock	X	X	H4D73AA
HP Business PC Security Lock v2 Kit	X		N3R93AA

Stands and Accessories

	SFF/MT	DM	Part Number
HP Integrated Work Center Stand v3 (SFF)	SFF only		F2P06AA
HP SFF Tower Stand	SFF only		VN569AA
HP (10 Sets) 400/600/705 G2 MicroTower Bezel Support Kit	MT only		N1M44AA
HP (10 Sets) 600/705/800 G2 SFF Bezel Support Kit	SFF only		N7H10AA
HP Serial Port Adapter (RS-232 compatible)	X		PA716A
HP Type-C to USB3 Adapter	X		N2Z63AA
HP PCIe x1 Parallel Port Card	X		N1M40AA

After-Market Options (availability may vary by region)

HP SuperSpeed USB 3.1 Gen 2 PCIe x1 Card	X		P1N75AA
HP Single Monitor Arm			BT861AA

LANDESK Software (e-delivery)

Part Number

Contact your HP representative for available options.	N/A

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Change Log

Date	Version History	Action	Description of Change
November 20, 2015	From v1 to v2		Multiple edits
November 25,2015	From v2 to v3	Changed	"HP USB Business Speakers for HP USB Business Speakers v2"
December 09 2015	From v3 to v4	Added	Multiple edits
January 26, 2016	From v4 to v5	Added	BIOS adheres to NIST SP800-147 to footnote 2 in SW Bios section
		Remove	Field upgradeable to 2.0" text below from the EliteDesk 705 G2 MT/SFF
January 28, 2016	From v5 to v6	Added	Internal SATA Ports
February 24, 2016	From v6 to v7	Added	M disc to HP 9.5mm Desktop G2 Slim SuperMulti DVD Writer Drive
			M disc to HP 9.5mm Desktop G2 Slim SATA BDXL Blu-Ray Writer
March 28, 2016	From v7 to v8	Added	HP 700mm DisplayPort Cable
April 1, 2016	From v8 to v9	Added	Stand Accessory
May 10, 2016	From v9 to v10	Added	Added solid state drive options
July 6, 2016	From v10 to v11	Update	Security description
December 5, 2016	From v11 to v12	Updated	SuperMulti references deleted
December 12, 2016	From v12 to v13	Updated	AMD DASH CAPABLE section updated
November 29, 2017	From v13 to v14	Update	Procesors table fixed (was out of the sheet)